103

DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS FOR 1994

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Department of Transportation and Re...

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BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS
FIRST SESSION

SUBCOMMITTEE ON THE DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS

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DELACROIX DAVIS III, RICHARD E. EFFORD, CHERYL L. SMITH, and LINDA J. MUIR,
Subcommittee Staff

PART 2

1994 BUDGET JUSTIFICATIONS

DEPARTMENT OF TRANSPORTATION: Page
Federal Aviation Administration 1
Federal Railroad Administration 533
Grants to Amtrak 723
Federal Transit Administration 753
Office of the Secretary 899
RELATED AGENCIES:
National Transportation Safety Board 1045
Panama Canal Commission 1169

Printed for the use of the Committee on Appropriations

JUL 27 1993

DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS FOR 1994

HEARINGS

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U.S. Department of
Transportation

BUDGET ESTIMATES

FISCAL YEAR 1994

FEDERAL AVIATION ADMINISTRATION

SUBMITTED FOR USE OF
THE COMMITTEES ON APPROPRIATIONS

(1)

FEDERAL AVIATION ADMINISTRATION
Congressional Justification of Estimates of Appropriations for Fiscal Year 1994

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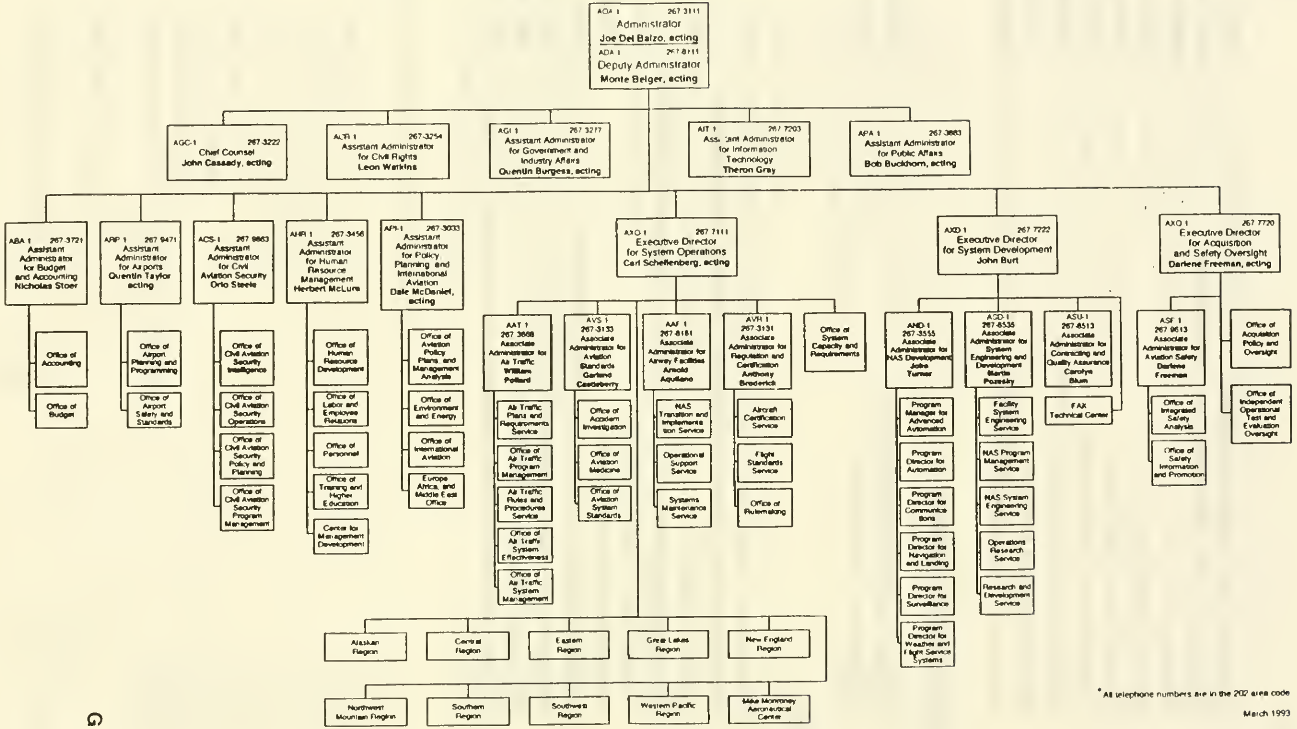
Federal Aviation Administration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ADA 1 267 8111 Deputy Administrator Monte Belger, acting
AGC-1 267 3222 Chief Counsel John Cassady, acting
ACR 1 267 3254 Assistant Administrator for Civil Rights Leon Watkins
AGI 1 267 3277 Assistant Administrator for Government and Industry Affairs Quentin Burgess, acting
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Office of Budget
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Office of Civil Aviation Security Operations
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AXO 1 267 7111 Executive Director for System Operations Carl Schellenberg, acting
AAT 1 267 3666 Associate Administrator for Air Traffic William Pollard
Air Traffic Plans and Requirements Service
Office of Air Traffic Program Management
Air Traffic Rules and Procedures Service
Office of Air Traffic System Effectiveness
Office of Air Traffic System Management
AVS 1 267-3133 Associate Administrator for Aviation Standards Garland Castleberry
Office of Accident Investigation
Office of Aviation Medicine
Office of Aviation System Standards
AAF 1 267 8181 Associate Administrator for Airway Facilities Arnold Aquilano
NAS Transition and Implementation Service
Operational Support Service
Systems Maintenance Service
AVR 1 267-3131 Associate Administrator for Regulation and Certification Anthony Broderick
Aircraft Certification Service
Flight Standards Service
Office of Rulemaking
Office of System Capacity and Requirements
Alaskan Region
Central Region
Eastern Region
Great Lakes Region
New England Region
Northwest Mountain Region
Southern Region
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Office of Safety Information and Promotion
Office of Acquisition Policy and Oversight
Office of Independent Operational Test and Evaluation Oversight

* All telephone numbers are in the 202 area code

March 1993

FEDERAL AVIATION ADMINISTRATION

GENERAL STATEMENT

Legislative Authority

The Federal Aviation Administration (FAA) is an operating administration within the Department of Transportation pursuant to the Department of Transportation Act, Public Law 89-670.

The FAA provides aeronautical services under authority of several statutes, including:

1. The Federal Aviation Act of 1958, as amended, which created the Federal Aviation Agency, provides for the promotion and regulation of civil aviation in order to assure the safe and efficient use of the Nation's airspace by civil and military aircraft.

2. The International Aviation Facilities Act, as amended, which was enacted to encourage the development of an international air transportation system adapted to the needs of the foreign commerce of the United States, the postal service, and the national defense.

3. The Airport and Airway Improvement Act of 1982, as amended, which was enacted to continue the program of federal assistance for airport improvements. The Administration is proposing legislation to continue the program in FY 1994.

The declaration of policy for the Administration, set forth in section 103 of the Federal Aviation Act, summarizes effectively the objectives we wish to attain. It states that --

> In the exercise and performance of his powers and duties under this Act, the Administrator shall consider the following, among other things, as being in the public interest:
>
> (1) The regulation of air commerce in such manner as to best promote development and safety and fulfill the requirements of national defense.
>
> (2) The promotion, encouragement, and development of civil aeronautics.

(3) The control of the use of the navigable air space of the United States and the regulation of both civil and military operations in such air space in the interest of the safety and efficiency of both.

(4) The consolidation of research and development with respect to air navigation facilities, as well as the installation and operation thereof.

(5) The development and operation of a common system of air traffic control and navigation for military and civil aircraft.

Basic Programs

To achieve the objectives set forth in the basis statutes summarized above, FAA conducts the following basic programs:

1. Regulates air commerce to insure safety through the development, promulgation and administration of safety and medical standards, and regulations that govern airmen, aircraft, aeronautical operations and related ground support activities; monitors aeronautical activities to assure adherence to regulations and to determine necessary changes in regulations; and prosecutes enforcement actions against those who violate regulations.

2. Assures the safe and efficient movement of air traffic by furnishing preflight and in-flight assistance to pilots; by providing air navigation services for access to the airway system, and guidance in the approach and landing phases of flight; and by controlling the separation of flight in the en route and terminal areas.

3. Assists in the development of public-use airports by making grants-in-aid to localities for airport planning and improvements.

4. Carries out other activities designed to facilitate and promote the development of safe and efficient air commerce.

Aviation Industry Indicators

The workload of the FAA is generated by the activity of all segments of the aeronautical community. Aviation activity is expected to increase in FY 1994, as demonstrated by the following indicators.

	Fiscal Year 1993	Fiscal Year 1994	
	Amount	Amount	Percent Change
Aviation fuel consumption (billions of gallons)	18.1	17.8	+4.6
Revenue passenger miles (billions)	499.8	533.1	+6.3
General aviation hours flown (millions)	36.2	30.6	+1.7
IFR aircraft handles (millions) at Air Route Traffic Control Centers	38.3	38.4	+2.4
Total operations at airports with FAA towers (millions)	64.0	64.1	+2.6
IFR operations handled by FAA towers (millions)	47.4	47.6	+2.6

1994 Estimates

The fiscal year 1994 request reflects estimates totaling $9,229 million in appropriations and obligation limitation, an increase of $311 million over the $8,918 million FY 1993 enacted level.

The Operations request of $4,576 million reflects an increase of $38 million in budget authority over FY 1993. The trust fund share of operations is $2307.3 million. This funding supports safety, security and efficiency of the national airspace system.

The Grants-in-Aid for Airports (Airport and Airway Trust Fund) request establishes a $1,879 million (including $30.4 million investment) obligation limitation for planning and development of the nation's airports. A $2,184 million liquidating cash appropriation is requested to ensure that sufficient trust fund cash will be available to liquidate obligations as they become due. $15.2 million liquidating cash appropriation is requested for investment purposes.

The Facilities and Equipment (Airport and Airway Trust Fund) request totals $2,524 million, including $107 million in investment funding. This funding will continue programs which increase safety, efficiency and the capacity of the nation's airway system. Major efforts are in progress to upgrade the automated capability in terminal air traffic control facilities, provides improved terminal radar systems, modernize traffic control towers and facilities, and provide new and improved air navigation facilities.

The Research, Engineering and Development (Airport and Airway Trust Fund) request of $250 million, including $13 million investment funding, provides for near-term and long-term research to meet the airspace system needs of the next century. Major efforts in FY 1994 involve Advance Traffic Management Systems, Terminal Air Traffic Control Automation, Oceanic Data Link, and expanded human factors initiatives.

The Aviation Insurance Revolving Fund reflects estimated revenue of approximately $3.8 million from fees and investments in U.S. Treasury securities, and estimated expenses of $195 thousand.

Aircraft Purchase Loan Guarantee Program. This program is continuing only for the purpose of making payments to private lenders upon defaults on existing loans by air carriers. No new loan guarantees are being made. The FY 1994 budget requests funds to repay borrowings and interest accrued thereon to the Treasury.

Working Capital Fund. In FY 1994, $24 million from the Operations account will finance services provided through the Department's Working Capital Fund.

Consulting Services. For FY 1994, the FAA will require approximately $1.6 million for consulting services. Consulting services are needed for activities which would otherwise require additional Government employees. Examples of major consulting service contract include continuation of program initiatives associated with substance abuse, air traffic controller selection and training systems and work associated with the development of airport safety standards and support efforts in areas such as forecasting. Major activities requiring these services are: Air Traffic, Systems Maintenance; Direction, Staff, and Supporting Services; and Human Resource Management.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY - FINANCING
(Dollars in Thousands)

BUDGET AUTHORITY

APPROPRIATION TITLE	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate
Operations	4,360,000	4,538,000	4,576,000
(Federal)	2,250,375	2,258,679	2,307,250
(Trust)	2,109,625	2,279,321	2,268,750
Aircraft Purchase Loan Guarantee	193	150	149
Grants-in-Aid for Airports (Trust)			
Contract Authority	1,900,000	2,050,000	1,848,600
Investment			30,400
Obligation Limitation	[1,900,000]	[1,800,000]	[1,879,000]
Stimulus		[250,000]	
Investment			[30,400]
Facilities and Equipment (Trust)	2,409,000 1/	2,350,000	2,417,282
Investment			106,718
Research, Engineering and Development (Trust)	218,135	230,000	237,371
Investment			12,629
TOTAL, BUDGET AUTHORITY	8,887,328	9,168,150	9,229,149
(Federal)	2,250,568	2,258,829	2,307,399
(Trust Fund)	6,636,760	6,909,321	6,921,750
LIQUIDATING CASH APPROPRIATIONS:			
Grants-in-Aid for Airports	1,620,000	2,000,000	2,184,800
Stimulus Supplemental		250,000	
Investment			15,200

1/ Includes $15 million supplemental to cover costs arising from Hurricane Andrew, Hurricane Iniki, and Typhoon Omar.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY - FINANCING
($ in thousands)

PROGRAM LEVEL

APPROPRIATION TITLE	FY 1992 Actual	FY 1993 Enacted	FY 1994 Request
Operations	4,360,961	4,538,916	4,576,000
(Federal)	2,251,336	2,259,595	2,307,250
(Trust Fund Share)	2,109,625	2,279,321	2,268,750
Aviation Insurance Revolving Fund	122	185	195
Aircraft Purchase Loan Guarantee Prog.	193	150	149
Miscellaneous Expired Account		507	
Grants-in-Aid for Airports (Trust)	1,849,499	1,800,000	1,848,600
Stimulus		250,000	
Investment	0	0	30,400
Facilities and Equipment (Trust)	2,136,887	2,554,000	2,710,000
Investment	0	0	64,031
Research, Engineering and Development (Trust)	212,094	246,299	237,371
Investment	0	0	12,629
Total Program Level	8,559,756	9,390,057	9,479,375
(Federal)	2,251,651	2,260,437	2,307,594
(Trust)	6,308,105	7,129,620	7,171,781

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY - FINANCING

($ in thousands)

OUTLAYS

APPROPRIATION TITLE	1992 Actual	1993 Enacted	1994 Request
Operations	4,386,971	4,507,000	4,564,340
(Federal)	2,277,338	2,227,687	2,295,590
(Trust Fund Share)	2,109,633	2,279,313	2,268,750
Aviation Insurance Revolving Fund	-2,958	-3,600	-3,600
Aircraft Purchase Loan Guarantee Prog.	177	178	149
Miscellaneous Expired Accounts	0	1,869	0
Grants-in-Aid for Airports (Trust)	1,672,126	2,071,800	1,783,880
Investment	0	0	5,472
Stimulus		34,000	106,000
Facilities and Equipment (Trust)	1,884,526	1,959,500	2,117,076
Investment	0	0	21,344
Research, Engineering and Development (Trust)	214,397	242,100	248,582
Investment	0	0	7,577
TOTAL OUTLAYS	8,155,239	8,812,847	8,850,820
(Federal)	2,274,557	2,226,134	2,292,139
(Trust)	5,880,682	6,586,713	6,558,681

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY - FTE

FTE -TOTAL

DIRECT FUNDED, BY APPROPRIATION	1992 Actual	1993 Enacted	1993 Revised	1994 Request
Operations	50,114	50,308	49,356	48,922
Facilities and Equipment	1,733	2,200	2,200	2,300
Research, Engineering and Development	754	692	692	692
Aviation Insurance Revolving Fund	2	2	2	2
Subtotal, Direct Funded	52,603	53,202	52,250	51,916
REIMBURSEMENTS AND ALLOCATIONS				
Operations	364	516	516	390
Facilities and Equipment	51	55	55	55
Research, Engineering and Development	3	6	6	6
Subtotal, Reimbursement and Allocations	418	577	577	451
Ceiling: FTE-FTP	52,257	52,859	52,179	51,733
Ceiling: FTE-OTFTP	764	920	648	634
FTE Ceiling	53,021	53,779	52,827	52,367
Non-Ceiling FTE-FTP	492	433	416	416
Non-Ceiling FTE-OTFTP	0	0	0	0
FTE-Non-Ceiling	492	433	416	416
FTE-FTP	52,749	53,292	52,595	52,149
FTE-OTFTP	764	920	648	634
Total	53,513	54,212	53,243	52,783
Allocations to Other Agencies	0	0	0	0

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY - STAFFING

AUTHORIZED POSITIONS AND EOY EMPLOYMENT

	POSITIONS (Full-Time Permanent)			END-OF-YEAR EMPLOYMENT (Full-Time Permanent POS.)		
Direct Funded, By Appropriation	1992	1993	1994	1992	1993	1994
Operations	52,351	52,251	50,865	49,206	49,310	48,185
Facilities and Equipment	2,204	2,504	2,504	2,066	2,300	2,450
Research, Engineering and Development	645	645	645	624	636	636
Aviation Insurance Revolving Fund	2	2	2	1	2	2
Subtotal	55,202	55,402	54,016	51,897	52,248	51,273
Reimbursement and Allocations						
Operations	490	490	390	396	490	390
Facilities and Equipment	55	55	55	54	55	55
Research, Engineering and Development	6	6	6	6	6	6
Subtotal	551	551	451	456	551	451
TOTAL	55,753	55,953	54,467	52,353	52,799	51,724

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIAITON ADMINISTRATION
DRUG-RELATED BUDGET ESTIMATES
($000)

APPROPRIATION	FY 1992 Actual			FY 1993 Enacted			FY 1994 Requested		
OPERATIONS:	POS	FTE	$	POS	FTE	$	POS	FTE	$
Air Traffic, FSS	56	53	5,023	56	53	5,224	55	53	5,383
Aviation Standards, Med.	92	37	3,410	92	80	6,900	92	80	5,990
Aviation Standards, RSA	112	41	931	109	49	1,896	109	45	1,645
Civil Aviation Security	20	19	1,119	28	25	1,496	28	26	1,546
Human Resource Mgmt.	19	21	3,855	19	0	0	19	0	0
TOTAL OPERATIONS	299	171	14,338	304	207	15,516	303	204	14,564
FACILITIES & EQUIPMENT:									
Renovation of Airmen and Aircraft Reporting System	0	0	8,000	0	0	4,000	0	0	9,100
RESEARCH, ENGINEERING AND DEVELOPMENT	7	7	715	7	7	850	8	8	1,036
TOTAL, ALL APPROPS.	306	178	23,053	311	214	20,366	311	212	24,700

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

OPERATIONS

For necessary expenses of the Federal Aviation Administration, not otherwise provided for, including administrative expenses for research and development, establishment of air navigation facilities and the operation (including leasing) and maintenance of aircraft, and carrying out the provisions of the Airport and Airway Development Act, as amended, or other provisions of law authorizing the obligation of funds for similar programs of airport and airway development or improvement, lease or purchase of four passenger motor vehicles for replacement only, [$4,538,000,000] $4,576,000,000, of which [$2,279,321,000] $2,268,750,000 shall be derived from the Airport and Airway Trust Fund: Provided, That there may be credited to this appropriation funds received from States, counties, municipalities, foreign authorities, other public authorities, and private sources, for expenses incurred in the maintenance and operation of air navigation facilities and for issuance, renewal or modification of certificates, including airman, aircraft, and repair station certificates, or for tests related thereto, or for processing major repair or alteration forms: Provided further, That none of these funds shall be available for new applicants for the second career training program: [Provided further, That, of the funds available under this head, $2,000,000 shall be made available for the Mid-American Aviation Resource Consortium in Minnesota to operate an air traffic controller training program:] Provided further, That funds may be used to enter into a grant agreement with a nonprofit standard setting organization to assist in the development of aviation safety standards: [Provided further, That none of the funds provided shall be made available for pay raises in fiscal year 1993 for FAA employees whose responsibilities include noise abatement policy function, managing aircraft route design or changes, or responsibility for preparing, managing, or overseeing the environmental impact statement mandated by section 9119 of Public Law 101-508 until the final report on such impact statement is issued: Provided further, That of the funds provided, up to $50,000 shall be made available to the New Jersey Coalition Against Aircraft Noise for the provision of technical assistance, in accordance with the provisions of title 5, United States Code, in reviewing and assessing the draft environmental impact statement issued pursuant to section 9119 of Public Law 101-508: Provided further, That of the funds available under this heading, $500,000 shall be made available to the Cleveland Clinic Foundation to initiate a definitive study to evaluate the human factors related to and/or inherent in pilot error. This study will be carried out in conjunction with Ohio State University.] (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Program and Financing (in thousands of dollars)

Identification Code: 69-1301-0-1-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Program by activities:			
	Direct program:			
00.01	Operation of traffic control system	2,003,362	2,083,815	2,107,427
00.02	NAS logistics support	204,462	170,854	175,024
00.03	Maintenance of traffic control system	785,471	847,460	866,436
00.04	Leased telecommunications services	317,572	323,396	315,634
00.05	Aviation regulation and certification	323,735	333,632	343,086
00.06	Aviation standards	115,023	121,586	116,373
00.07	Civil aviation security	64,681	69,507	69,193
00.08	NAS design and management	23,516	55,309	58,523
00.09	Administration of airports	40,799	40,906	41,258
00.10	Direction, staff and supporting services	152,138	157,010	157,986
00.11	Human resource management	283,349	282,712	272,830
00.12	Headquarters administration	46,853	52,729	52,230
00.91	Total, direct program	4,360,961	4,538,916	4,576,000
01.01	Reimbursable program	51,619	57,800	55,100
10.00	Total obligations	4,412,580	4,596,716	4,631,100

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

OPERATIONS APPROPRIATION

Program and Financing (in thousands of dollars)

Identification Code: 69-1301-0-1-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Financing:			
21.40	Unobligated balance available, start of year	-919	-916	0
24.40	Unobligated balance available, end of year	916	0	0
25.00	Unobligated balance expiring	1,189	0	0
39.00	Budget authority (gross)	4,413,766	4,595,800	4,631,100
	Budget authority:			
	Current:			
40.00	Appropriation	2,250,375	2,258,679	2,307,250
	Permanent:			
68.00	Spending authority from offsetting collections	2,163,391	2,337,121	2,323,850

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Program and Financing (in thousands of dollars)

Identification Code:	69-1301-0-1-402	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Relation of obligations to outlays:			
71.00	Total obligations	4,412,580	4,596,716	4,631,100
72.40	Obligated balance, start of year	576,036	522,537	554,445
74.40	Obligated balance, end of year	-522,537	-554,445	-566,105
77.00	Adjustments in expired accounts	-25,350	0	0
87.00	Outlays (gross)	4,440,729	4,564,808	4,619,440
	Adjustments to budget authority and outlays: Deductions for offsetting collections:			
88.00	Federal funds	-38,571	-41,921	-38,700
88.30	Trust funds	-2,109,625	-2,279,321	-2,268,750
88.40	Non-Federal sources	-15,195	-15,879	-16,400
88.90	Total, offsetting collections	-2,163,391	-2,337,121	-2,323,850
89.00	Budget authority (net)	2,250,375	2,258,679	2,307,250
90.00	Outlays (net)	2,277,338	2,227,687	2,295,590

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS

PROGRAM AND PERFORMANCE

This account supports the operation and maintenance of a safe national aviation system. It finances the personnel and support costs of operating and maintaining the air traffic control system and ensuring the safety and security of aircraft, flight procedures, navigation aids, and airports through periodic inspections. It also supports overall policy direction and guidance.

For 1994, the budget proposes to streamline costs and staffing while maintaining adequate levels of safety work forces to ensure the continued safe operation of the airways. Overall staffing will be brought in line with recent past and projected future air traffic activity and other workload measures. This includes a 1994 controller workforce of 17,871.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Object Classification (in thousands of dollars)

Identification Code: 69-1301-0-1-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full-time permanent	2,315,584	2,465,950	2,468,460
11.3	Other than full-time permanent	26,736	27,109	30,378
11.5	Other personnel compensation	268,584	272,713	270,986
11.8	Special personal services payments	4,198	5,349	5,472
11.9	Total personnel compensation	2,615,102	2,771,121	2,775,296
12.1	Civilian personnel benefits	642,298	660,529	682,241
13.0	Benefits for former personnel	1,234	1,242	1,222
21.0	Travel and transportation of persons	105,946	106,795	106,455
22.0	Transportation of things	22,570	18,327	20,088
23.2	Rental payments to others	39,957	43,639	44,758
23.3	Comm., utilities and miscellaneous charges	371,658	381,535	380,995
24.0	Printing and reproduction	13,856	13,228	13,388
25.1	Consulting services	1,295	1,449	1,505
25.2	Other services	430,976	459,048	465,271

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
Object Classification (in thousands of dollars)

Identification Code: 69-1301-0-1-402	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
26.0 Supplies and materials	79,709	65,731	68,214
31.0 Equipment	35,699	15,602	15,821
32.0 Lands and structures	273	154	130
42.0 Insurance claims and indemnities	388	516	616
99.0 Subtotal, direct obligations	4,360,961	4,538,916	4,576,000
99.0 Reimbursable obligations	51,619	57,800	55,100
99.9 Total obligations	4,412,580	4,596,716	4,631,100
Personnel Summary			
Direct: Total compensable workyears:			
Full-time equivalent employment	50,588	49,753	49,319
Full-time equivalent of overtime and holiday hours	1,175	1,200	1,200
Reimbursable: Total compensable workyears:			
Full-time equivalent employment	364	516	390
Full-time equivalent of overtime and holiday hours	8	8	8

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FY 1994 CONGRESSIONAL BUDGET
OPERATIONS APPROPRIATION

	Dollar Resources ($000)			Staffing			
				FTP	Ceiling FTE		
	PC&B	Other Objects	Total	Pos	Total	FTP	OTFTP
1. FY 1992 Actual	$3,258,634	$1,101,366	$4,360,000	52,351	50,114	49,440	674
2. FY 1993 Program Level	3,432,892	1,105,108	4,538,000	52,251	49,356	48,790	566
3. Price Level, Annualization and other non-discretionary changes	64,147	33,287	97,434	0	0	0	0
4. Program Reductions (Discretionary)	(47,881)	(77,815)	(125,696)	(1,386)	(434)	(419)	(15)
5. Recommended Program Increases	9,601	56,661	66,262	0	0	0	0
6. FY 1994 Request Level	$3,458,759	$1,117,241	$4,576,000	50,865	48,922	48,371	551

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Summary of Program Requirements
FY 1994 Congressional Budget
Operations Appropriation
(Dollars in Thousands)

ACTIVITY	FY 1993 Estimate		FY 1994 Estimate		Difference	
	Positions	Amount	Positions	Amount	Positions	Amount
Operation of Traffic Control System	27,386	$2,083,815	26,756	$2,107,427	(630)	$23,612
NAS Logistics Support	1,389	170,854	1,323	175,024	(66)	4,170
Maintenance of Traffic Control System	10,991	847,460	10,579	866,436	(412)	18,976
Leased Telecommunications Services	0	323,396	0	315,634	0	(7,762)
Aviation Regulation and Certification	5,420	333,632	5,348	343,086	(72)	9,454
Aviation Standards	1,414	121,586	1,346	116,373	(68)	(5,213)
Civil Aviation Security _1/	1,031	68,591	997	69,193	(34)	602
NAS Design and Management	529	55,309	529	58,523	0	3,214
Administration of Airports	550	40,906	522	41,258	(28)	352
Direction, Staff and Supporting Services	1,434	157,010	1,434	157,986	0	976
Human Resource Management	1,533	282,712	1,457	272,830	(76)	(9,882)
Headquarters Administration	574	52,729	574	52,230	0	(499)
TOTAL	52,251	$4,538,000	50,865	$4,576,000	(1,386)	$38,000

_1/ FY 1993 Estimate excludes $916,000 No-Year.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FY 1994 CONGRESSIONAL BUDGET
OPERATIONS APPROPRIATION
NON-DISCRETIONARY CHANGES AND PROGRAM REDUCTIONS
(Dollar Amounts in Thousands)

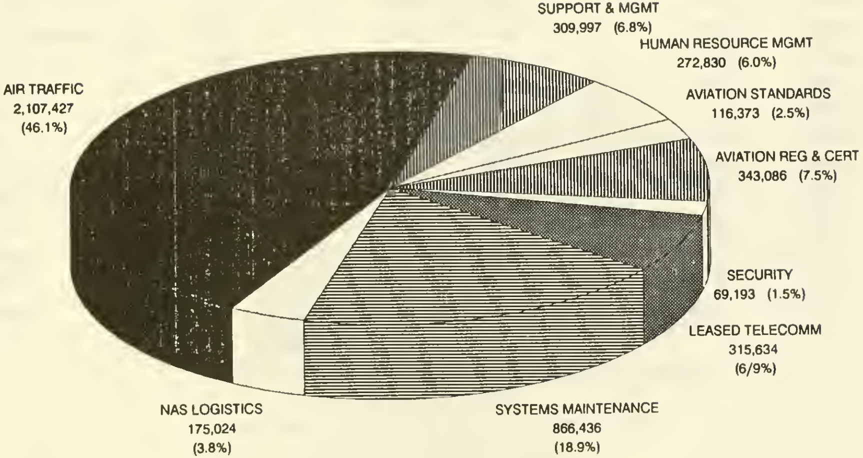
Price Level, Annualization, and Other Non-Discretionary Increases

ACTIVITY	FY 1993 FTE SAVINGS	ANNUALIZED PAY	ANNUALIZED PAY RAISE	NEW PAY ADJUSTMENTS	SAVINGS DUE TO TURNOVER	MISC.	BENEFIT ADJUSTMENT	TOTAL PAY ADJUSTMENTS
AIR TRAFFIC CONTROL	(9,412)	7,805	15,124	28,904	(12,234)		6,849	37,036
NAS LOGISTICS SUPPORT	(387)	583	538	557	(1,107)		2,042	2,226
SYSTEMS MAINTENANCE	(3,039)	(501)	4,851	8,258	(7,342)		363	2,590
LEASED TELECOMMUNICATIONS	0	0	0	0	0		0	0
AVIATION REGULATION & CERTIFICATION	(1,426)	2,335	2,234	2,943	(1,464)	1,266	3,656	9,544
AVIATION STANDARDS	(341)	(743)	546	588	(1,072)		140	(882)
CIVIL AVIATION SECURITY	(264)	0	411	608	(377)		845	1,223
NAS DESIGN & MANAGEMENT	(197)	524	295	177	(530)		756	1,025
ADMINISTRATION OF AIRPORTS	(169)	(74)	268	273	(369)	639	209	777
DIRECTION, STAFF & SUPPORTING SERVICES	(407)	1,316	658	899	(754)		465	2,177
HUMAN RESOURCE MANAGEMENT	(442)	740	710	979	(1,671)		6,751	7,067
HEADQUARTERS ADMINISTRATION	(203)	773	310	384	(455)		465	1,274
TOTAL, OPERATIONS APPROPRIATION	(16,287)	12,758	25,945	44,570	(27,375)	1,905	22,541	64,057

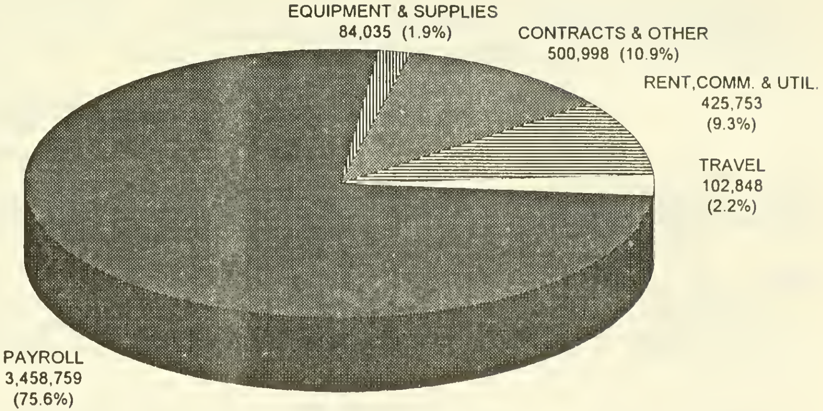
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FY 1994 CONGRESSIONAL BUDGET
OPERATIONS APPROPRIATION
NON-DISCRETIONARY CHANGES AND PROGRAM REDUCTIONS
(Dollar Amounts in Thousands)

	Price Level, Annualization, and Other Non-Discretionary Increases						
ACTIVITY	INFLATION	OTHER MANDATORY INCREASES	TOTAL NON-DISC.	FY 1994 FTE SAVINGS	PROGRAM DECREASES	ADMINISTRATIVE REDUCTIONS	TOTAL REDUCTION
AIR TRAFFIC CONTROL	3,476		40,512	(9,661)	(17,156)	(83)	(26,900)
NAS LOGISTICS SUPPORT	3,079		5,305	(1,625)	(64)	(4,446)	(6,135)
SYSTEMS MAINTENANCE	5,960		8,550	(7,393)	(4,210)	(3,271)	(14,874)
LEASED TELECOMMUNICATIONS	8,731	2,799	11,530	0	(25,883)	(10,610)	(36,493)
AVIATION REGULATION & CERTIFICATION	1,445		10,989	(1,003)	(1,688)	(1,244)	(3,935)
AVIATION STANDARDS	1,351		469	(1,487)	(710)	(3,485)	(5,682)
CIVIL AVIATION SECURITY	418		1,641	(796)	(229)	(14)	(1,039)
NAS DESIGN & MANAGEMENT	460		1,485	(817)	(45)	(409)	(1,271)
ADMINISTRATION OF AIRPORTS	162		939	(732)	(76)	(140)	(948)
DIRECTION, STAFF & SUPPORTING SERVICE	1,897		4,074	(1,646)	(129)	(4,323)	(6,098)
HUMAN RESOURCE MANAGEMENT	3,242		10,309	(1,832)	(12,087)	(6,272)	(20,191)
HEADQUARTERS ADMINISTRATION	357		1,631	(966)	(106)	(1,058)	(2,130)
TOTAL, OPERATIONS APPROPRIATION	30,578	2,799	97,434	(27,958)	(62,383)	(35,355)	(125,696)

OPERATIONS APPROPRIATION
FY 1994 BUDGET BY MAJOR ACTIVITY
(Dollars in Thousands)



OPERATIONS APPROPRIATION
FY 1994 BUDGET BY MAJOR OBJECT CLASS
(Dollars in Thousands)



DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
AIR TRAFFIC

	DOLLAR RESOURCES ($000)			Staffing			
					CEILING FTE		
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1. FY 1992 ACTUAL	$1,869,787	$133,575	$2,003,362	28,070	27,361	27,142	219
2. FY 1993 PROGRAM LEVEL _1/	1,957,639	126,176	2,083,815	27,386	26,696	26,477	219
3. PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	37,036	3,476	40,512	0	0	0	0
4. PROGRAM REDUCTIONS (DISCRETIONARY)	(25,438)	(1,462)	(26,900)	(630)	(134)	(134)	0
5. RECOMMENDED PROGRAM INCREASES	7,800	2,200	10,000	0	0	0	0
6. FY 1994 REQUEST LEVEL	$1,977,037	$130,390	$2,107,427	26,756	26,562	26,343	219

_1/ FY 1993 reflects a reduction of −394 positions redistributed to Direction, Staff and Support, Human Resource Managment and Headquarters Administration to resolve agency disparities. The positions are now more in line with full-time permanent employment and on board staffing. FY 1993 also reflects a baseline transfer −190 positions, −181 FTE's, and −$11,350,500 from the Air Traffic Program to establish the new Operational Support Service.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

General Justification

For FY 1994, the operation of the Air Traffic Control System will require $2,107,427,000, 26,756 FTP positions, and 26,562 FTE's. This represents a net increase of $23,612,000, a decrease of -630 FTP's and -134 FTE's to the FY 1993 level.

This activity covers the operation of a national system of air traffic control and flight service facilities to assure safety, reliability, and regularity of flight operations. In FY 1994, the FAA will operate 24 enroute facilities and an estimated 429 terminal facilities of which approximately 150 provide full radar service to handle a daily average of 175,616 takeoffs and landings and 130,411 instrument flight rules (IFR's), and provide 102,740 flight services. The system also will be responsible for the safety of a daily average of 1,497,534 revenue passengers in the United States. In 1992 the FAA operated 115 non-automated flight service station (FSS) and 59 automated flight service stations (AFSS).

The operation of the Air Traffic Control System consists of five major subactivities:

Air Route Traffic Control Centers

The major elements are the operation of enroute air traffic control, long-range radar, NAS Stage A computers (HOST), and direct controller-pilot voice communications. The objective of the enroute traffic control system is to provide for safe, orderly, and expeditious movement of the IFR air traffic along the airways and in positive control areas.

Airport Traffic Control Towers

The major elements are the operation of airport surveillance radar, automated radar terminal systems computers, approach lighting, instrument landing systems, and various visual aids and radio navigation facilities. The objective of the terminal air traffic control system is to provide for safe, orderly, and expeditious movement of air traffic in the vicinity of the airport.

Flight Service Stations

The major elements are the operation of an extensive network of landline telecommunications circuits, point-to-point radio circuits, air-ground radio channels and related equipment for the exchange of air traffic control information, weather information, and for flight assistance services. The objectives of flight service stations are: (1) the provision of flight assistance (pre-flight, in-flight, and emergency); and (2) the collection and distribution of meteorological and aeronautical information.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Planning, Direction, and Evaluation

This subactivity provides top level management and direction of the air traffic control system. Functions include the development of standardized air space and procedures for operation of the air traffic control system, support and maintenance of the air traffic control computer operational software, evaluation of air traffic operations' safety and efficiency and centralized management of the air traffic flow management system. Included are personnel at Washington headquarters, the National Communications Center (NATCOM) in Kansas City, MO, the National Flight Data Center (NFDC) in Washington, DC, the Centralized Programming Group (CPG) at the Technical Center in Atlantic City, NJ, as well as evaluation personnel in the Seattle, Ft. Worth, and Atlanta regional divisions who manage, direct, and evaluate the day-to-day operations of the system.

System Capacity and Requirements

The Office of System Capacity and Requirements (ASC) was realigned April 8, 1990, from the Executive Director for System Development to the Executive Director for System Operations. ASC is responsible for the definitions, oversight, and policy formulation of system capacity programs to improve airport and airspace capacity and provide leadership to ensure their implementation. The programs encompass short-, medium-, and long-term objectives and goals, and guide the FAA's efforts to enhance airport and airspace capacity.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Operational Activity Based on FAA Aviation Forecasts, Office of Aviation Policy*

Volume of Activity (In Millions)

Facility		Actual**			Forecast***				Percentage Change				
		1991	1992	1993	1994	1995	1996	1997	1991 1992	1992 1993	1993 1994	1994 1995	1994 1997
Centers	IFR Aircraft Handled	36.4	36.7	37.5	38.4	39.3	40.0	40.7	0.82%	2.18%	2.40%	2.34%	5.99%
Towers	Aircraft Operations	61.5	61.5	62.5	64.1	65.6	67.0	68.3	0.00%	1.63%	2.56%	2.34%	6.55%
	Instrument Operations	45.1	45.6	46.4	47.6	48.9	50.0	51.0	1.11%	1.75%	2.59%	2.73%	7.14%
Stations	Flight Services	41.1	40.2	38.8	37.5	37.4	37.7	38.1	-2.19%	-3.48%	-3.35%	-0.27%	1.60%
	General Aviation Hours Flown	30.5	29.9	30.1	30.6	31.3	31.9	32.5	-1.97%	0.67%	1.66%	2.29%	6.21%

* In addition to standard forecasts, FAA also uses other factors to determine CWF Staffing levels. These may include number of controllers in training and an estimate of the number of additional sectors, etc.

** FY 1993 data is preliminary actual based on February 1993 forecast.

*** Forecast data from FAA Aviation Forecasts, Fiscal Years 1993-2004, FAA-APO 93-1, February 1993.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Overtime ($000)		FY 1990 Actual	FY 1991 Actual	FY 1992 Actual	FY 1993 Estimate	Proposed Change	FY 1994 Estimate
Centers	- Hours	177,000	123,900	97,900	97,900	0	97,900
	Amount	$6,345	$4,570	$3,763	$3,902	$0	$3,902
Towers	- Hours	254,000	228,400	188,500	188,500	0	188,500
	Amount	$8,518	$7,702	$6,624	$6,869	$0	$6,869
Stations	- Hours	90,000	77,900	66,400	66,400	0	66,400
	Amount	$2,080	$1,795	$1,595	$1,654	$0	$1,654
PD&E	- Hours	8,000	6,100	4,300	4,300	0	4,300
	Amount	$143	$171	$125	$130	$0	$130
ASC	- Hours	0	100	0	0	0	0
	Amount	0	$1	$0	$0	$0	$0
Total	- Hours	529,000	436,400	357,100	357,100	0	357,100
	Amount	$17,086	$14,239	$12,107	$12,555	$0	$12,555

Notes:

1. Overtime hours have been rounded up/down to the nearest hundred.
2. Overtime hours per subactivity in columns labeled "Actual" are estimated based on payroll and actual obligation data.
3. Estimated overtime hours and dollars are based on projections by the FAA regional offices and on adjusted rate data.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Resource Summary ($000)

		(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
Centers -	PC&B	$645,846	$700,559	$763,299	799,163	$5,488	804,651
	O.O.	10,358	12,868	11,696	11,048	235	11,283
	TOTAL	$656,204	$713,427	$774,995	$810,211	$5,723	$815,934
Towers -	PC&B	$677,024	$731,300	$791,704	828,903	$17,035	845,938
	O.O.	11,743	12,580	11,185	10,565	1,726	12,291
	TOTAL	$688,767	$743,880	$802,889	$839,468	$18,761	$858,229
Stations -	PC&B	$210,699	$224,609	$239,654	250,914	($3,889)	247,025
	O.O.	16,223	17,152	16,515	15,600	245	15,845
	TOTAL	$226,922	$241,761	$256,169	$266,514	($3,644)	$262,870
PD&E -	PC&B	$62,768	$67,047	$73,783	77,087	$820	77,907
	O.O.	87,040	92,748	92,202	87,015	1,962	88,977
	TOTAL	$149,808	$159,795	$165,985	$164,102	$2,782	$166,884
System - Capacity	PC&B	0	1,082	1,346	1,572	(56)	1,516
	O.O.	0	1,969	1,979	1,948	46	1,994
	TOTAL	$0	$3,051	$3,325	$3,520	($10)	$3,510
TOTAL -	PC&B	$1,596,337	$1,724,597	$1,869,786	$1,957,639	$19,398	$1,977,037
	O.O.	125,364	137,317	133,577	126,176	4,214	130,390
	TOTAL	$1,721,701	$1,861,914	$2,003,363	$2,083,815	$23,612	$2,107,427

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Staffing Information

FTP Positions	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
Centers	10,360	10,334	10,477	10,215	(133)	10,082
Towers	12,259	12,279	12,486	12,184	(157)	12,027
Stations	4,400	4,200	4,120	4,000	(150)	3,850
PD&E	914	971	971	971	(190)	781
System Capacity*	0	16	16	16	0	16
TOTAL	27,933	27,800	28,070	27,386	(630)	26,756
Total Direct Ceiling FTE's						
Centers	10,067	10,051	10,162	9,742	(11)	9,731
Towers	11,568	11,613	11,901	11,860	(22)	11,838
Stations	4,217	4,198	4,199	4,099	(100)	3,999
PD&E	987	1,013	1,079	975	0	975
System Capacity*	0	15	20	20	(1)	19
TOTAL	26,839	26,890	27,361	26,696	(134)	26,562
End of Year Employment Information						
Centers**	9,845	10,290	9,809	9,665	(84)	9,581
Towers	11,537	11,675	11,901	11,821	(115)	11,706
Stations	4,179	4,173	4,156	4,066	(216)	3,850
PD&E	1,027	1,069	1,060	950	0	950
System Capacity*	0	15	15	20	0	20
TOTAL	26,588	27,222	26,941	26,522	(415)	26,107

* The Office of System Capacity was transferred from the Administration of Airports budget activity to the Air Traffic budget activity in FY 1991.

** FAA Academy students who have not been classified as to option are carried in the center staffing other-than-CWF totals until assigned.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Employment Information

	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
CENTERS:						
CWF	7,794	8,105	8,224	8,105	0	8,105
Managers	339	345	246	237	(10)	227
Specialists	270	346	241	243	(4)	239
Air Traffic Assistants	662	550	440	424	(67)	357
Other Support/Trainees	780	944	658	656	(3)	653
Total	9,845	10,290	9,809	9,665	(84)	9,581
TOWERS:						
CWF	9,432	9,616	9,758	9,766	0	9,766
Managers	596	628	690	651	(5)	646
Specialists	586	608	666	658	(25)	633
Air Traffic Assistants	571	419	360	323	(78)	245
Other Support/Trainees	352	404	427	423	(7)	416
Total	11,537	11,675	11,901	11,821	(115)	11,706

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Employment Information

	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
STATIONS:						
Area Supervisors	391	398	400	391	(21)	370
Managers	305	325	313	306	(16)	290
Specialists	3,347	3,313	3,312	3,241	(172)	3,069
Other Support/Trainees	136	137	131	128	(7)	121
Total	4,179	4,173	4,156	4,066	(216)	3,850
PD&E:						
Total Support	1,027	1,069	1,060	950	0	950
SYSTEM CAPACITY:						
Total Support	0	15	15	20	0	20
TOTAL AIR TRAFFIC:						
CWF	17,226	17,721	17,982	17,871	0	17,871
Area Supervisors	391	398	400	391	(21)	370
Managers	1,240	1,298	1,249	1,194	(31)	1,163
Specialists	4,203	4,267	4,219	4,142	(201)	3,941
Air Traffic Assistants	1,233	969	800	747	(145)	602
Other Support/Trainees	2,295	2,569	2,291	2,177	(17)	2,160
Total	26,588	27,222	26,941	26,522	(415)	26,107

OPERATIONS APPROPRIATION

Operation of Traffic Control System

	End of Year Employment - Controller Work Force (CWF)					
	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
CENTERS - FPL and Other Controllers	6,009	6,358	6,614	6,990	105	7,095
- First Line Supervisors	817	856	866	863	0	863
Total Operational Controllers	6,826	7,214	7,480	7,853	105	7,958
- Developmental Pipeline	968	891	674	252	(195)	57
Total Centers CWF	7,794	8,105	8,154	8,105	(90)	8,015
TOWERS - FPL and Other Controllers	7,422	7,674	7,923	8,113	122	8,235
- First Line Supervisors	1,387	1,453	1,508	1,475	0	1,475
Total Operational Controllers	8,809	9,127	9,431	9,588	122	9,710
- Developmental Pipeline	623	489	397	178	(32)	146
Total Towers CWF	9,432	9,616	9,828	9,766	90	9,856
TOTAL - FPL and Other Controllers	13,431	14,032	14,537	15,103	227	15,330
- First Line Supervisors	2,204	2,309	2,374	2,338	0	2,338
Total Operational Controllers	15,635	16,341	16,911	17,441	227	17,668
- Developmental Pipeline	1,591	1,380	1,071	430	(227)	203
TOTAL Controller Work Force	17,226	17,721	17,982	17,871	0	17,871

CONTROLLER WORK FORCE HISTORY FY 1981 THRU FY 1989

7/31/81*	FY 81	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89
16,234	6,575	12,117	13,084	13,714	13,998	14,803	15,433	16,436	16,832

*Professional Air Traffic Controllers Organization strike occurred on August 3, 1981.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Definitions of Centers and Towers Staffing:

The following definitions were put into use beginning October 1, 1987 (FY 1988).

CONTROLLER WORK FORCE:

FULL PERFORMANCE LEVEL CONTROLLERS: There are two categories of full performance level (FPL) controllers: (1) a GS-2152 series air traffic controller who has reached the highest nonsupervisory controller grade for the facility to which he/she is assigned and is certified on all required operational positions in his/her area of specialization; and (2) a GS-2152 series air traffic controller who serves as a traffic management coordinator (TMC) responsible for administering air traffic management programs, such as enroute metering, ground delays, and the severe weather advisory program.

OTHER OPERATIONAL CONTROLLERS: GS-2152 series air traffic controllers at the FPL grade but not yet certified on all required operational positions, and developmental air traffic controllers, at or above the GS-10 grade, who are certified on two or more operational positions.

DEVELOPMENTAL PIPELINE: GS-2152 series air traffic controllers who have successfully completed FAA Academy training or the equivalent university-level training and are assigned to air traffic control facilities but who have not yet certified on two operational positions.

AREA SUPERVISOR: A GM-2152 series supervisory air traffic controller who is responsible for the safe and efficient operation of an area of specialization. An area supervisor is required to maintain operational currency and work operational positions a minimum of sixteen hours per month. Area supervisors are also called first-line supervisors and are counted as part of the controller work force (CWF).

OTHER THAN CONTROLLER WORK FORCE:

STAFF SPECIALISTS: GS-2152 series air traffic controllers who are assigned to a variety of support positions, such as airspace and procedures, training, quality assurance, military operations, and plans and programs.

OTHER SUPPORT/TRAINEES: Other support personnel include computer programmers, administrative and clerical support, and trainees at the FAA Academy. For example: Academy trainees include those controller candidates who have completed the pre-training screen and entered into the Academy for initial training.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

AIR TRAFFIC ASSISTANTS: GS-2154 series personnel who perform a variety of flight data duties which would otherwise be performed by air traffic controllers and air traffic developmentals.

MANAGERIAL PERSONNEL: GS-2152 series personnel, including the positions of Facility Managers, Assistant Managers, and Area Managers who provide operational and administrative supervision and direction.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

General Justification

Air Traffic Retirements 1/	CY 1991		CY 1992		CY 1993		CY 1994	
	Eligible	Actual	Eligible	Actual	Eligible	Estimate 3/	Eligible	Estimate 3/
Centers	758	56	917	101	1,011	202	974	195
Towers	872	80	997	92	1,082	216	1,086	217
TOTAL 2/	1,630	136	1,914	193	2,093	418	2,060	412

1. Numbers include air traffic controllers in Centers and Towers only.

2. Numbers exclude disability retirements.

3. Estimates for CY 1993 and CY 1994 assume that 20 percent of eligibles will retire.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

The estimate for FY 1994 provides a net change of $23,612,000, a decrease of 630 FTP's and 134 FTE's over FY 1993. Changes in the requirements for FY 1994 follow:

	($000) TOTAL	CENTERS	TOWERS	STATIONS	PD&E	ASC
FY 1993 Civilian Employment Reduction	(9,412)	(5,966)	(574)	(1,436)	(1,436)	0
Mandatory Wage Increases (Net)	46,448	20,885	20,114	4,016	1,417	16
Inflationary Increases	3,476	222	283	85	2,839	47
Subtotal, Non-Discretionary Changes	40,512	15,141	19,823	2,665	2,820	63
Program Decreases						
FY 1994 Civillam Employment Reductions	(9,661)	(793)	(1,586)	(7,210)	0	(72)
Administrative Cost Reductions	(83)	0	0	0	(83)	0
Travel Reductions	(379)	(147)	(152)	(49)	(30)	(1)
Pay Demonstration Project	(15,777)	(9,203)	(6,574)	0	0	0
New Jersey Noise Study	(1,000)	0	0	0	(1,000)	0
Subtotal, Program Decreases	(26,900)	(10,143)	(8,312)	(7,259)	(1,113)	(73)
Program Increases						
Permanent Change of Station Moves	10,000	725	7,250	950	1,075	0
TOTAL NET CHANGE	23,612	5,723	18,761	(3,644)	2,782	(10)

OPERATIONS APPROPRIATION

Operation of Traffic Control System

The estimate for FY 1994 provides a net change of $23,612,000, -630 FTP's, and -134 FTE's over FY 1993. Changes in requirements for FY 1994 follow.

Non-discretionary Changes . . . . -630 FTP's, -134 FTE's, $40,512,000

The request includes a decrease of -$9,412,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839, "Reduction of 100,000 Federal Positions". The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

Mandatory wage increases totalling $46,448,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and the annualized costs of the FY 1993 pay raise. These increases have been partially offset by -$12,234,000 for anticipated retirements and turnover.

Price increases totalling $3,476,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as printing services, travel, transportation, per diem, rents, services, utilities, supplies, permanent change of stations moves and contract services.

Program Reductions . . . . -630 FTP's, -134 FTE's, -$26,900,000

Civilian Employment Reductions . . . . -$9,681,000

Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -630 FTP's, -134 FTE's and -$9,661,000 are reflected as savings in FY 1994. The FTE savings will be acquired through attrition.

Administrative Cost Reductions . . . . -$83,000

Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Air Traffic reduction in administrative expenses will result in savings of -$83,000. Administrative reductions have been applied against the object class 20 series.

Travel Reductions . . . . -$379,000

Additional savings of -$379,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Pay Demonstration Project . . . . -$15,777,000

This request includes a decrease of -$15,777,000 in the pay demonstration project. These savings result from terminating the project in September 1993 -- nine months ahead of schedule. On March 19, 1989, the Office of Personnel Management approved a five-year FAA pay demonstration project to be implemented on June 18, 1989, and expire on June 17, 1994. The objective of this project was to test whether a pay allowance of up to 20 percent would improve FAA's ability to recruit and retain highly qualified safety personnel at "hard-to-staff" facilities in the New York, Chicago, San Francisco, Los Angeles areas. For the Air Traffic program, the program covers 1,742 air traffic controllers at 9 air traffic facilities. By the end of September 1993, there will be more than four years of data from the project. Terminating the project will not compromise the project nor the evaluation of the project.

New Jersey Noise Study . . . . -$1,000,000

The New Jersey Noise Study is expected to be completed in FY 1993. Continued funding beyond FY 1993 will not be required, resulting in savings of -$1,000,000.

Program increases $10,000,000

Permanent Change of Station (PCS) Moves $10,000,000

PCS funding is required to ensure critical vacancies can be filled. This increase will allow the Air Traffic program to fund 466 moves. An estimated 53 moves are required for employees exercising their return rights. Funding return rights moves is not discretionary. Once employees elect to exercise their return rights, the FAA is required to fund the moves.

The operation of the Air Traffic Control System requires that key positions be filled with the best qualified people. PCS moves provide the opportunity to relocate controllers who have been successful in lower level facilities to higher level, more complex air traffic facilities. Air Traffic's ability to effectively place its work force has been seriously diminished by inadequate levels of PCS funds in prior years. Over the past several years, AT has had to reprogram funding originally scheduled for PCS in order to pay for unbudgeted cost absorptions or PC&B shortfalls. Programming flexibility in the AT program is extremely limited due to the unusually high percentage of personnel costs to total program (94%). In addition, price escalation in the cost per PCS move has caused the number of PCS moves that are accomplished with the same level of funding to decline. Over the last couple of years the average cost per PCS move has increased approximately 10% annually. Limited FY 1993 funding will create a PCS backlog which will be carried into FY 1994.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Air Traffic Annual PCS Base

Fiscal Year	Number of Moves	Actual Obligations ($000)	Average Cost/Move	Percent of Increase
1986	1,464	27,316	18,658	
1987	2,577	49,632	19,260	3.2%
1988	1,665	36,204	21,744	12.9%
1989	1,405	35,675	25,391	16.8%
1990	1,464	42,132	28,779	13.3%
1991	1,232	38,755	31,457	9.3%
1992	745	26,620	35,732	13.6%
1993 estimate	235	9,000	38,274	7.1%
1994 request	466	19,000	40,816	6.6%

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
NAS LOGISTICS

		DOLLAR RESOURCES ($000)			Staffing			
						CEILING FTE		
		PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1.	FY 1992 ACTUAL	$79,634	$124,828	$204,462	1,338	1,758	1,703	55
2.	FY 1993 PROGRAM LEVEL	65,070	105,784	$170,854	1,389	1,315	1,287	28
3.	PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	2,228	3,079	5,305	0	0	0	0
4.	PROGRAM REDUCTIONS (DISCRETIONARY)	(1,625)	(4,510)	(6,135)	(66)	(27)	(22)	(5)
5.	RECOMMENDED PROGRAM INCREASES	0	5,000	5,000	0	0	0	0
6.	FY 1994 REQUEST LEVEL	$65,671	$109,353	$175,024	1,323	1,288	1,265	23

NOTES:

FY 1992 FTP's and FY 1993 FTE's and funding reflect a baseline transfer from NAS Logistics to Headquarters Administration (23 FTP's, 23 FTE's, and $1,771,000) and NAS Design Management (264 FTP's, 342 FTE's, and $36,840,000) (FY93)+6 FTP's, 342 FTE's, and $36,840,000) consistent with the Agency's restructuring of operational management and alignment of functions in the fall of 1992.

FY 1993 FTP's reflect a base transfer of 45 FTP's from Systems Maintenance for the E&R function and 6 FTP's from NDM to complete the alignment of functions.

OPERATIONS APPROPRIATION

NAS Logistics Support

General Justification

For FY 1994, the National Airspace System (NAS) Logistics Support activity will require $175,024,000, 1,323 Positions, and 1,288 FTE's. This request represents a net increase of $4,170,000 over the FY 1993 program level.

The agency follows a program of modernization that uses cradle to grave, life cycle acquisition processes. This is a structured process that allows for the acquisition, maintenance, and operation of National Airspace System (NAS) equipment in an efficient and economical manner. The first two steps of the life cycle are approximately 30 percent of the required life cycle expenditure and are funded through the Facilities and Equipment (F&E) appropriation. The remaining 70 percent is funded within the Operations appropriation. This budget identifies the logistics portion of the maintenance and operations necessary to complete a year of the life cycle.

This activity is responsible for agency-wide procurement of major air traffic control and air navigation systems; purchasing, leasing, and management of real estate including land, office space, and specialized facilities; materiel management, property management and administrative services to support the day-to-day operations of the agency; depot and limited field level maintenance and supply support for NAS equipment and agency aircraft; and replenishment and repair of spares.

This budget reflects a baseline transfer of FY 1992 position's, FY 1993 FTE's and dollar's from NAS Logistics to Headquarters Administration (23 FTP's, 23 FTE's and $1,771,000) and NAS Design Management (264 FTP's, 342 FTE's, and $36,840,000) consistent with the Agency's restructuring of operational management and alignment of functions in the fall of 1992.

The NAS Logistics Support program consists of four subactivities:

Acquisition of Spares and Repair Services (FY 1994: 763 FTP's, 743 FTE's, $99,866,000)

This subactivity represents 57 percent of the total program. Included are personnel, materiel, and support equipment for high value and unique repairable modules used to replace failed operational equipment components and to support the daily operations of the agency, including the NAS systems. These functions are essential for continued performance of previously installed field equipment and to support the impact that deployment of the NAS systems will have on the exchange and repair (E&R) program. The NAS Supply Support Program ensures that the appropriate spares and repair parts are acquired to maintain all FAA major system acquisitions. The maintenance required calls for specialized training and sophisticated testing procedures to perform detailed repair of complex multi-level printed circuit boards, major structural repair of navigation and landing systems previously installed in the field, maintenance of training facilities at the FAA Academy, and engineering support for depot level maintenance.

Acquisition of Spares and Repair Services (cont.)

Many of the old systems planned for decommissioning are tube type and are currently repaired in the field by electronics technicians. As the FAA progresses to solid state equipment, the capability to repair printed circuit boards in the field does not exist; therefore, the exchange and repair workload is shifting from the field to the FAA Logistics Center. Resources to support the FAA Logistics Center (FAALC), a critical function within FAA, are included in this subactivity. The FAALC operates 24 hours a day, 365 days a year and is responsible for the management of FAA's central materiel inventory and distribution system. It provides logistics support to 14,200 facilities, 72 foreign countries, 2,500 ordering offices and other government agencies. Further, this subactivity supports FAA's aircraft used in Flight Standards for inspector currency, enforcement, and flight inspection of air navigational facilities; and provides materiel and property management to support the day-to-day operation of the FAA. The activity includes the maintenance and operational support of the Logistics and Inventory System (LIS) and Computer Dispatch System (CDS) -- the agency's central inventory and distribution systems.

Procurement (FY 1994: 298 FTP's, 290 FTE's, $17,252,000)

This subactivity represents 10 percent of the total program. This subactivity is mainly composed of the salaries and expenses for the Regions and Mike Monroney Aeronautical Center acquisition and contract administration staff. They administer contracts for: scheduled implementation of the major NAS plan systems; real estate; spares; repair parts and material to maintain operational air navigation, air traffic control facilities, and agency aircraft; maintenance of FAA Academy training equipment; and FAA-owned and leased property. In addition, they will process actions resulting from the new Denver Airport Project and other new air traffic control tower construction projects. Also, they will provide support for the AAS, VSCS, ARTS II and ARTS III.

OPERATIONS APPROPRIATION

NAS Logistics Support

Structural and Specialized Tasks (FY 1994: 215 FTP's, 209 FTE's, $51,503,000)

This subactivity represents 29 percent of the total program. Included under this subactivity are resources to operate and maintain the Mike Monroney Aeronautical Center. This includes the alteration, maintenance, and repair of buildings, grounds and roads; management of administrative property; technical administration of contracted A-76 activities, such as the FAALC inventory management and FAALC support activities; and management of FAA-owned and leased housing to support locations. It also includes support for many field facilities, regional motor fleet, facility security, and fire protection; repair and maintenance necessary to prevent structural damage; and administrative services to support the day-to-day operations of the FAA. The funding requested for this subactivity will provide safe, structurally sound, and secure buildings for persons and property; prevent higher cost emergency repairs for items that were not repaired while the problem was minimal; and have functional space available to support increased activity related to required operations. In addition, the FAA will be able to efficiently operate large installations which support the agency's aircraft, depot level maintenance of NAS equipment, agency's training facilities, medical programs, airmen and aircraft records, research, engineering and development programs, and aircraft and airport safety programs.

Planning, Direction and Evaluation (FY 1994: 47 FTP's, 46 FTE's, $6,403,000)

This subactivity represents 4 percent of the total program. Included are resources to plan, direct, and define program objectives; formulate standards and procedures; and evaluate the effectiveness of the total logistics operation. Included are logistics personnel in the Logistics Service, regional headquarters, and the Mike Monroney Aeronautical Center who supervise and evaluate the day-to-day operation of field facilities, develop and approve operation plans and procedures, and assure compliance with Federal Acquisition Regulations.

OPERATIONS APPROPRIATION

NAS Logistics Support

Workload Measures

Category	Number of Items 1992 Actual	 1993 (Est.)	 1994 (Est.)	Percent Change 1992 1993	 1993 1994
Procurement Requests Processed/Received	63,177	69,331	72,036	9.74%	3.90%
Contracts Awarded	2,895	3,142	3,304	8.53%	5.16%
Contracts Under Administration	3,743	4,016	4,279	7.27%	6.55%
Purchase Orders	36,756	39,950	41,683	8.69%	4.34%
Delivery Orders	11,261	12,163	12,582	8.01%	3.44%
Mod of PO/DO	6,701	7,451	7,721	11.19%	3.62%
Contract Modifications	3,111	3,401	3,576	9.32%	5.15%
Lease, Purchases and Other Agreements	3,548	3,848	4,054	8.46%	5.35%
Space Management/Layout	976	1,046	1,070	7.17%	2.29%
Contract Administration	13,035	13,621	14,449	4.50%	6.08%
Property Surveys	352	375	383	6.53%	2.13%
Utility Surveys	1,595	1,773	1,817	11.16%	2.48%
Task Orders	2,984	3,054	3,132	2.35%	2.55%
Excess/Disposal Property Actions	28,424	28,936	29,826	1.80%	3.08%
In-Use Property Inputs	232,958	184,017	178,288	-21.01%	-3.11%
Survey Reports for Lost/Damaged Property	3,227	2,307	2,006	-28.51%	-13.05%
Regional Motor Fleet	4,408	4,593	4,608	4.20%	0.33%
Project Materiel	12,357	12,500	12,750	1.16%	2.00%

OPERATIONS APPROPRIATION

NAS Logistics Support

Resource Summary ($000)		(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993 1/	Change	(Est.) FY 1994
Acquisition of Spares and Repairs......................	PC&B	28,963	33,980	41,676	34,054	313	34,367
	O.O.	78,997	69,811	72,353	61,315	4,184	65,499
	Total	107,960	103,791	114,029	95,369	4,497	99,866
Procurement..	PC&B	19,007	17,953	20,006	16,347	150	16,497
	O.O.	491	877	908	769	(14)	755
	Total	19,498	18,830	20,914	17,116	136	17,252
Structural and Specialized Tasks.......................	PC&B	12,595	12,009	13,382	10,935	102	11,037
	O.O.	82,860	46,731	48,409	41,024	(558)	40,466
	Total	95,455	58,740	61,791	51,959	(456)	51,503
Planning, Direction and Evaluation....................	PC&B	4,614	4,101	4,570	3,734	36	3,770
	O.O.	2,438	3,049	3,158	2,676	(43)	2,633
	Total	7,052	7,150	7,728	6,410	(7)	6,403
Executive Director for Acquisition 2/	PC&B	0	1,401	0	0	0	0
	O.O.	0	34	0	0	0	0
	Total	0	1,435	0	0	0	0
TOTAL..	PC&B	65,179	69,444	79,634	65,070	601	65,671
	O.O.	164,786	120,502	124,828	105,784	3,569	109,353
	Total	229,965	189,946	204,462	170,854	4,170	175,024

1/ Reflects a baseline transfer from NAS Logistics to Headquarters Administration and NAS Design Management consistent with the Agency's restructuring of operational management and alignment of functions in the fall of 1992.

2/ Function transferred to Headquarters Administration activity as part of the Agency's restructuring of operational management and alignment of functions.

OPERATIONS APPROPRIATION

NAS Logistics Support

NAS SUPPLY SUPPORT
FAA LOGISTICS CENTER STOCKS AND STORES
Major NAS Systems
($000)

Systems	Actual FY 1992	Estimate FY 1993	Increases for New NAS Systems	Request FY 1994
Automation	10,318	9,873	623	10,496
Communication	6,230	5,944	0	5,944
Radar	13,498	12,848	2,969	15,817
Weather	584	572	0	572
Environmental	3,569	3,435	0	3,435
Navaids	7,982	7,615	735	8,350
Test Equipment	6,425	6,163	0	6,163
Piece Parts	12,135	11,590	490	12,080
Non–Cataloged	1,363	1,305	183	1,488
Other Systems	2,790	2,655	0	2,655
Totals	64,894	62,000	5,000	67,000

OPERATIONS APPROPRIATION
NAS LOGISTICS SUPPORT

STAFFING INFORMATION

FTP Positions	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
Acquisition of Spares and Repairs	810	821	752	801	-38	763
Procurement	390	414	312	313	-15	298
Structural and Specialized Tasks	258	271	224	225	-10	215
Planning, Direction and Evaluation	67	63	50	50	-3	47
Executive Director for Acquisition	0	23	0	0	0	0
TOTAL	1,525	1,592	1,338	1,389	(66)	1,323
Ceiling FTE's						
Acquisition of Spares and Repairs	847	834	898	759	-16	743
Procurement	416	390	420	296	-6	290
Structural and Specialized Tasks	280	292	315	213	-4	209
Planning, Direction and Evaluation	64	98	106	47	-1	46
Executive Director for Acquisition	0	18	19	0	0	0
TOTAL	1,607	1,632	1,758	1,315	(27)	1,288
End of Year Employee Information						
Acquisition of Spares and Repairs	811	812	747	757	-35	722
Procurement	398	418	385	295	-14	281
Structural and Specialized Tasks	260	285	262	212	-10	202
Planning, Direction and Evaluation	61	76	70	47	-2	45
Executive Director for Acquisition	0	0	0	0	0	0
TOTAL	1,530	1,591	1,464	1,311	(61)	1,250

NOTES: FY 1992 FTP's and FY 1993 FTE's and EOY reflect a baseline transfer from NAS Logistics to Headquarters Administration and NAS Design Management consistent with the Agency's restructuring of operational management and alignment of functions in the fall of 1992.

FY 1993 FTP's reflect a baseline transfer of 45 FTP's from Systems Maintenance for the E&R function and 6 FTP's from NDM to complete the alignment of functions.

OPERATIONS APPROPRIATION

NAS Logistics Support

The estimate for FY 1994 provides a net change of -66 FTP's, -27 FTE's and $4,170,000 over FY 1993. Changes in requirements for FY 1994 are as follows:

	($000)
FY 93 Civilian Employment Reductions	(387)
Mandatory Wage Increases (Net)	2,613
Inflationary Increases	3,079
Subtotal Non-Discretionary	5,305
Program Decreases	
FY 94 Civilian Employment Reductions	(1,625)
Administrative Reductions	(4,446)
Travel Reductions	(64)
Subtotal Program Decreases	(6,135)
Program Increases	
NAS Supply Support - New NAS Facilities	5,000
Total Net Change	4,170

OPERATIONS APPROPRIATION

NAS Logistics Support

The estimate for FY 1994 provides a net change of -66 FTP's, -27 FTE's and $4,170,000 over FY 1993. Changes in requirements for FY 1994 follow:

Non-discretionary Changes $5,305,000

The request includes a decrease of $367,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

Mandatory wage increases totalling $3,720,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and costs for the annualization of the FY 1993 pay raise for one quarter in FY 1994. These increases have been offset by -$1,107,000 for anticipated turnover.

Price increases totalling $3,079,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as travel, transportation of things, non-GSA rent, equipment, supplies and materials, and other services.

Program Decreases .... -66 FTP's, -27 FTE's, and -$6,135,000

Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -66 FTP's, -27 FTE's and -$1,625,000 in savings are reflected. The FTE savings will be acquired through attrition.

Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the NAS Logistics reduction in administrative expenses will result in savings of -$4,446,000. Adminstrative reductions have been applied to the object class 20 series.

Additional savings of -$64,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

OPERATIONS APPROPRIATION

NAS Logistics Support

Program increases $5,000,000

This request includes an increase of $5,000,000 over the FY 1993 base of $62,000,000 to cover the increased costs required to provide for support of approximately 22 new high technology NAS systems within 5 major FAA disciplines (Radar, Automation, Piece Parts, Non-Cataloged, and Navaids) being deployed in FY 1994 and for continued/increased deployments of additional installations of systems which began initial deployments in FY 1992 and 1993. The FAA Logistics Center (FAALC) is the only depot level support service for maintenance of all NAS systems which includes components for field level replacement and/or repair and the support of FAALC exchange and repair (E&R) field requirements. As support of the new NAS systems that were fielded by the F&E appropriation is transferred to the Operations appropriation, the NAS Logistics program must provide for life cycle support of these systems.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
SYSTEMS MAINTENANCE

		DOLLAR RESOURCES ($000)			Staffing			
						CEILING FTE		
		PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1.	FY 1992 ACTUAL	$585,319	$200,152	$785,471	10,848	10,167	10,005	162
2.	FY 1993 PROGRAM LEVEL	629,994	217,466	847,460 1/	10,991 1/	10,299 1/	10,138	161
3.	PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	2,680	5,870	8,550	0	0	0	0
4.	PROGRAM REDUCTIONS (DISCRETIONARY)	(10,625)	(4,249)	(14,874)	(412)	(121)	(118)	(3)
5.	RECOMMENDED PROGRAM INCREASES	0	25,300	25,300	0	0	0	0
6.	FY 1994 REQUEST LEVEL	$622,049	$244,387	$866,436	10,579	10,178	10,020	158

1/ Forty-five positions transferred to the NAS Logistics Support budget activity to support the Exchange and Repair function. One hundred ninety (190) positions, 181 FTE's and $11,350,500 transferred from the Operation of Traffic Control budget activity to establish the new Operational Support Service (AOS). FY 1993 also reflects a reduction of two positions as part of an agency initiative to resolve full-time permanent position disparities. The positions are now more in line with full-time equivalent employment and on-board staffing.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

General Justification

For FY 1994, the operation of the Systems Maintenance activity will require $866,436,000, 10,579 FTP positions, and 10,178 FTE's. This represents a net change of $18,976,000, -412 FTP positions, and -121 FTE's from the FY 1993 level.

The Maintenance of the Traffic Control System consists of three major subactivities:

Field Maintenance (FY 1994: 9,373 FTP, 9,078 FTE's, $757,929,000)

This subactivity contains resources for the maintenance, repair and operation of facilities and equipment at 56 general National Airspace System (NAS) sector offices and 21 air route traffic control centers (ARTCC's) in the NAS. Direct FAA staffing is the core resource for this function. It is expected that the FY 1994 end-of-year employment level will be comprised of 8,923 personnel in the field maintenance work force (a decrease of 237 from FY 1993). These functions include maintenance of air traffic control equipment, navigation and landing aids, flight service facilities, and support of FAA plant facilities. Staffing responsibilities under this subactivity include the maintenance and repair of air navigation aids, traffic control, communications, and plant facilities. This includes airfields, housing, and related utility systems to assure the reliability and accuracy of all installed equipment.

Engineering (FY 1994: 508 FTP, 464 FTE's, $40,095,000)

This subactivity contains resources for developing, coordinating, and prescribing technical standards and procedures for installation, improvement, performance, and maintenance of facilities in the National Airspace System (NAS). Personnel financed under this subactivity are located in Washington, the regional headquarters, the Mike Monroney Aeronautical Center, and the Federal Aviation Administration Technical Center. Some specific services provided under this subactivity are:

1) Engineering design services, e.g., improvements to facilities; technical assistance in the preparation of specifications, and review and approval of instruction books and field installation procedures; and site selection of field facilities and joint commissioning acceptance.
2) Development and coordination of maintenance and technical operation of all installed facilities within the system; technical standards; technical performance and corrective actions as required; and system information and analysis.
3) Purchase of special working equipment and supplies, equipment rentals and repairs; and other services required, but not provided by the NAS Logistics Support budget activity.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Planning, Direction and Evaluation (FY 1994: 698 FTP, 636 FTE's, $68,412,000)

This subactivity contains the resources necessary for the overall policy, planning, direction, management, and evaluation of national and region/center programs. Personnel funded under this subactivity are responsible for: the facilities establishment program, i.e., construction, installation, improvement, dismantling, and relocation of facilities comprising the NAS; facilities maintenance and performance, including frequency assignments and configuration management of such facilities comprising the NAS; purchase of special work equipment and supplies, equipment rentals and repairs; and other services required, but not provided by the NAS Logistics Support budget activity. These employees are located in Washington, the regional headquarters, the Mike Monroney Aeronautical Center, and the Federal Aviation Administration Technical Center.

Major Initiatives and Changes

1. An increase of $21,123,000 is requested for contract maintenance of NAS facilities and equipment currently installed in the NAS and being supported by F&E.

2. An increase of $4,177,000 is requested for the operation and maintenance of air traffic facilities at DOD base closure locations that support the NAS (i.e., providing personnel, training and logistics support to service DOD equipment which is not currently included in the FAA inventory).

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Workload and Performance Indicators

The following performance indicators have been developed for the field maintenance subactivity:

Fiscal Year	Number of Facilities	Equipment and Service Availability
1990	26,778	99.82%
1991	28,123	99.84%
1992	28,634	99.85%
1993	28,948 (est.)	99.85% (est.)
1994	29,201 (est.)	99.85% (est.)

The estimate for FY 1994 provides for the continuation of direct maintenance services, including direction and engineering, related to the operation and improvement of the technical operation and maintenance of facilities and equipment. These maintenance services are essential to the safety and reliability of the National Airspace System (NAS).

The additional funds are required to provide for increased costs of maintaining existing facility systems in operation at the end of FY 1993 and maintenance for new facilities and equipment approved in prior years Facilities and Equipment (F&E) Appropriations. These new facilities and equipment are either under construction or scheduled for commissioning and operation in FY 1994.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

SUMMARY OF MAJOR ESTABLISHMENTS AND REPLACEMENTS

ESTABLISHMENT PROGRAM	FY 91 BASE	FISCAL YEAR 1992 COMMIS-SIONINGS	FISCAL YEAR 1992 DISCONT-SERVICE	FISCAL YEAR 1992 END OF YEAR	FISCAL YEAR 1993 COMMIS-SIONINGS	FISCAL YEAR 1993 DISCONT. SERVICE	FISCAL YEAR 1993 END OF YEAR	FISCAL YEAR 1994 COMMIS-SIONING	FISCAL YEAR 1994 DISCONT. SERVICE	FISCAL YEAR 1994 END OF YEAR
EN ROUTE AIR TRAFFIC CONTROL SERVICES										
AIR ROUTE SURVEILLANCE RADAR	114	1	0	115	0	0	115	0	0	115
AIR ROUTE TRAFFIC CONTROL CENTER	21	0	0	21	0	0	21	0	0	21
ATC BEACON INTERROGATOR	22	0	0	22	0	0	22	0	0	22
COMBINED CENTER/TERMINAL FACILITIES	3	0	0	3	0	0	3	0	0	3
TERMINAL AIR TRAFFIC CONTROL AND SERVICES										
AT SERVICES										
VFR TOWERS:										
FAA OPERATED	197	1	0	198	0	0	198	0	-25	173
FAA CONTRACT TOWER	26	1	0	27	6	0	33	0	0	33
NONRADAR APPROACH CONTROL TOWER	16	0	0	16	0	0	16	0	0	16
LIMITED RADAR APPROACH CONTROL TOWER	37	0	0	37	1	0	38	2	0	40
FULL RADAR APPROACH CTL TWR	149	0	0	149	0	-1	148	0	0	148
TERMINAL RADAR APPROACH CONTROL (TRACON ONLY)	29	0	0	29	1	0	30	1	-2	29
AF FACILITIES										
AIRPORT SURFACE DETECTION EQUIPMENT	12	1	0	13	9	0	22	4	0	26
AIRPORT SURVEILLANCE RADAR	205	4	-3	206	11	0	217	2	0	219
ATC RADAR BEACON	322	3	-2	323	3	0	326	0	0	326
RADIO COMMUNICATIONS LINK REPEATER	503	117	-2	618	0	0	618	13	0	631
RADIO COMMUNICATIONS LINK TERMINAL	159	11	0	170	23	0	193	2	0	195
MODE-S	0	0	0	0	16	0	16	65	0	81

ESTABLISHMENT PROGRAM	FY 91 BASE	FISCAL YEAR 1992			FISCAL YEAR 1993			FISCAL YEAR 1994		
		COMMIS-SIONINGS	DISCONT-SERVICE	END OF YEAR	COMMIS-SIONINGS	DISCONT. SERVICE	END OF YEAR	COMMIS-SIONING	DISCONT. SERVICE	END OF YEAR
FLIGHT SERVICE FACILITIES										
FLIGHT SERVICE STATIONS:										
DOMESTIC	115	0	-1	114	0	-39	75	0	-43	32
INTERNATIONAL	1	0	0	1	0	0	1	0	0	1
AUTOMATED	57	2	0	59	2	0	61	0	0	61
FLIGHT SERVICE DATA PROCESSING SYSTEM	12	2	0	14	0	0	14	0	0	14
AUTOMATED WEATHER OBSERVING SYSTEM	240	72	0	312	35	0	347	17	0	364
NEXT GENERATION WEATHER RADAR	0	0	0	0	15	0	15	27	0	42
DIRECTION FINDER EQUIPMENT	228	2	-2	228	2	0	230	12	0	242
REMOTE CENTER AIR/GROUND COMMUNICATIONS FACILITY	851	5	-6	650	34	0	684	17	0	701
REMOTE COMMUNICATIONS OUTLET	1,709	18	-10	1,717	17	0	1,734	9	0	1,743
NAVIGATION AND LANDING AIDS										
APPROACH LIGHT SYSTEM	805	2	-1	806	1	0	807	7	0	814
DISTANCE MEASURING EQUIPMENT	555	18	-2	571	3	0	574	12	0	586
INSTRUMENT LANDING SYSTEM	1,050	20	-1	1,069	32	0	1,101	30	0	1,131
LEAD-IN LIGHT FACILITY	17	0	0	17	0	0	17	0	0	17
MICROWAVE LANDING SYSTEM	3	3	-3	3	0	0	3	0	0	3
OMNIDIRECTIONAL AIRPORT LIGHTING SYSTEM	39	0	-1	38	1	0	39	3	0	42
RUNWAY END IDENTIFICATION LIGHT	628	27	-5	650	68	0	718	59	0	777
RUNWAY VISUAL RANGE	458	1	0	459	20	0	479	52	0	531
TACTICAL AIR NAVIGATIONAL EQUIPMENT	657	3	-3	657	0	0	657	8	0	665
VHF OMNIDIRECTIONAL RANGE	1,007	5	-2	1,010	7	0	1,017	20	0	1,037
VISUAL APPROACH SLOPE INDICATOR	1,343	9	-1	1,351	4	0	1,355	0	0	1,355
TOTAL	11,390	328	-45	11,673	311	-40	11,944	362	-70	12,236

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

REPLACEMENT PROGRAM	FY 1992	FY 1993	FY 1994
Airport Surveillance Radar (ASR)	27	49	40
Instrument Landing System (ILS)	9	21	37
VHF Omnidirectional Range (VOR)	5	52	28

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

New facilities and services are necessary for the following systems:

Terminal Control and Services: Facilities in this system ensure the safe and efficient flow of aircraft operating in the immediate vicinity of the airport and provide for approach control services to ensure separation of arriving, departing and en route aircraft. In FY 1994, 86 new facilities are planned for commissioning in this system: 4 airport surface detection equipment systems, 2 airport surveillance radar systems, 13 radio communications link repeaters, 2 radio communications link terminals, and 65 mode-s/data links.

Flight Service Facilities: The system includes facilities for flight assistance, en route/ground communications, dissemination of meteorological and aeronautical information, and monitoring of navigation aids. In FY 1994, 82 new facilities are planned for commissioning in this system: 17 automated weather observing systems, 27 next generation weather radars, 12 direction finders, 17 remote center air/ground communications facilities, and 9 remote communications outlets.

Navigation and Landing Aids: Navigation facilities in this system define the location of principal airways and enable pilots to determine positive distance and direction information from ground stations. The landing aids provide pilots with direction, distance, vertical guidance, and alignment during approach and landing in Instrument Flight Rules conditions. In addition, there are a variety of lighting aids which enable pilots to have visual contact with the active runway through visual aids to align the aircraft to the approach path and runway. In FY 1994, 191 such facilities are scheduled for commissioning.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Major New Facilities Scheduled for Commissioning in FY 1994

1. Terminal Air Traffic Control and Services

   a. Airport Surface Detection Equipment (4 locations)

      (1) District of Columbia: Washington

      (2) Louisiana: New Orleans

      (3) Maryland: Baltimore

      (4) California: Los Angeles

   b. Airport Surveillance Radar (2 locations)

      (1) Montana: Missoula

      (2) Virginia: Charlottesville

   c. Radio Communications Link Repeater (13 locations)

      (1) Illinois: Kankakee
      McCook
      Tinley Park

      (2) Indiana: Goshen
      Huntingburg
      Terre Haute

      (3) Michigan: Detroit
      Ypsilanti

      (4) Minnesota: Minneapolis

(5) Ohio: Akron Canton
Sandusky
Toledo

(6) California: Madison

d. Radio Communications Link Terminal (2 locations)

(1) California: Antelope Mt

(2) Mississippi: Spring Branch

e. Mode-S (65 locations)

(1) Washington: Pasco
Seattle

(2) Alabama: Birmingham

(3) Arizona: Davis Monthan

(4) California: Marysville
Burbank
Los Angeles
Long Beach (2)
McClellan
San Diego
Moffett
Oceanside
Ontario
Red Bluff
Santa Barbara

(5) Florida: Ft. Lauderdale
Sarasota
Tallahassee

(6) Georgia: Atlanta

(7) Illinois: Chicago
Sterling

(8) Indiana: Indianapolis

(9) Louisiana: New Orleans

(10) Maryland: Andrews (2)

(11) Maine: Bangor

(12) Michigan: Grand Rapids

(13) Minnesota: Minneapolis

(14) Montana: Billings

(15) North Carolina: Raleigh

(16) Nebraska: Omaha

(17) Nevada: Battle Mountain
- Fallon
- Las Vegas
- Angel Peak
- Tonopah

(18) New York: Buffalo (2)
- Syracuse (2)
- Albany
- Rochester

(19) Ohio: Cleveland
- Columbus
- Dayton

(20) Pennsylvania: Harrisburg (2)
- Pittsburgh

(21) Rhode Island: Providence

(22) South Carolina: Charleston

(23) Texas: Dallas
- Houston (2)
- Colleyville
- San Antonio

(24) Virginia: Chantilly (2)
- Norfolk (2)
- Hampton
- Roanoke

(25) Wisconsin: Milwaukee

(26) Oregon: Portland

(27) Washington, DC

2. Flight Service Facilities

a. Automated Weather Observing System (17 locations)

(1) Alaska:
- Mckinley Park
- Buckland
- Anaktuvuk
- Anvik
- Quinhagak
- Arctic Village
- Golovin
- Dillingham
- Emmonak
- Tahneta Pass
- Huslia
- Sleetmute
- Selawik
- Noatak
- Chignik Bay
- Koyuk

(2) Nevada: Minden

b. Next Generation Weather Radar (27 locations)

(1) Alabama: Birmingham
Mobile

(2) Bahamas: Georgetown

(3) Florida: Jacksonville (2)
Tallahassee

(4) Georgia: Atlanta

(5) Idaho: Boise

(6) Kentucky: Paducah

(7) Louisiana: Lake Charles
New Orleans

(8) North Carolina: Wilmington

(9) New Hampshire: Nashua

(10) South Carolina: Columbia
Charleston

(11) Tennessee: Nashville
Memphis (2)
Knoxville

(12) Texas: Dallas/Ft. Worth
Lubbock

(13) Utah: Salt Lake City

(14) Washington: Seattle
Auburn

(15) Turks Caicos: Grand Turk

(16) Illinois: Aurora

(17) Indiana: Indianapolis

c. Direction Finder Equipment (12 locations)

(1) Alaska: Fairbanks

(2) Arkansas: Horseshoe Bend
Russellville

(3) Louisiana: Monroe

(4) New Jersey: Millville

(5) New Mexico: Corona

(6) Pennsylvania: Bradford

(7) New Hampshire: Concord

(8) New York: Saranac Lake

(9) Ohio: Findlay
Athens

(10) Arizona: Gila Bend

d. Remote Center Air/Ground Communications Facility (17 locations)

(1) Colorado: Longmont

(2) Texas: Three Rivers
Kerrville
Gainesville

(3) Colorado: Denver
Longmont

(4) Idaho: Priest Lake

(5) Montana: Malmstrom

(6) Nebraska: Valentine

(7) Oregon: Lebanon
Fossil

(8) Washington: Ocean Shores
Auburn

(9) Alaska: Sand Point

(10) Kansas: Manhattan
Salina

(11) Missouri: Kirksville

e. Remote Communications Outlets (9 locations)

(1) Utah: Blanding

(2) Arizona: Douglas

(3) California: Riverside
Palm Springs
Thermal

(4) Nevada: Beatty
Pioche
Mormon Mesa
Mina

3. Navigation and Landing Aids

a. Approach Light System (7 locations)

(1) Missouri: St. Louis
(2) Illinois: Champaign
(3) Indiana: Terre Haute
(4) Michigan: Grand Rapids
(5) Ohio: Cleveland
(6) South Dakota: Huron
(7) Wisconsin: Eau Claire

b. Distant Measuring Equipment (12 locations)

(1) Alabama: Selma
(2) Pennsylvania: Philadelphia
(3) Florida: Elgin AFB
(4) Wisconsin: Lacrosse
(5) Maine: Bangor
(6) New Jersey: Newark
(7) Missouri: St. Louis (2)
(8) Louisiana: Monroe
(9) Texas: San Antonio
(10) Bahamas: Georgetown
San Salvador

c. Instrument Landing System (30 locations)

(1) Alabama: Bessemer
(2) Arkansas: El Dorado
(3) Florida: Jacksonville
(4) Kansas: Olathe
(5) Kentucky: Murray
(6) Maine: Worcester
(7) Missouri: Kansas City
(8) Mississippi: Natchez
Pascagoula
Olive Branch

(9) South Carolina: Anderson
Columbia

(10) Texas: Nacogdoches

(11) Utah: Salt Lake City

(12) Indiana: Connersville

(13) New York: Farmingdale

(14) New Mexico: Albuquerque

(15) Alabama: Jasper

(16) Colorado: Montrose

(17) Florida: Jacksonville

(18) Georgia: Waycross

(19) Indiana: Indianapolis

(20) Kentucky: Bowling
Louisville

(21) Michigan: Detroit

(22) New Hampshire: Manchester
Laconia

(23) Massachusetts: Boston

(24) California: Lincoln

(25) Minnesota: Grand Rapids

d. Omnidirectional Airport Lighting System (3 locations)

(1) New York: Dunkirk

(2) Oregon: Aurora

(3) Washington: Pullman/Moscow, ID

e. Runway End Identifier Lights (59 locations)

(1) Idaho: Salmon
Hailey

(2) Illinois: Lake in the Hills
Mattoon

(3) Indiana: Plymouth
Muncie

(4) Maine: Biddeford
Wiscasset

(5) Minnesota: Anoka County
Owatonna

(6) Ohio: Circleville
Toledo

(7) Texas: Amarillo (3)
San Antonio (2)
San Angelo
Georgetown
Sulphur Springs
Falfurrias

(8) New York: Jamaica
Binghamton
Buffalo
Islip (2)
Poughkeepsie
Utica
Westhampton

(9) Utah: Blanding

(10) Virginia: Richmond
Roanoke

(11) Wyoming: Buffalo

(12) Alaska: Kodiak
Kotzebue
Unalakleet

(13) Pennsylvania: Erie

(14) Delaware: Wilmington

(15) Vermont: Burlington

(16) New Jersey: Caldwell
Cross Keys
Atlantic City
Lincoln Park

(17) Colorado: Craig
Denver
Eagle
Ft. Collins
Ft. Morgan
Front Range
Lamar
La Junta

(18) Kansas: Manhattan

(19) Arkansas: Mena

(20) Alabama: Dothan

(21) Michigan: Traverse City

(22) Missouri: St. Louis

(23) Mississippi: Olive Branch

(24) Wisconsin: Waukesha

(25) Hawaii: Honolulu

f. Tactical Air Navigation Equipment (8 locations)

(1) Guam: Obyan
Majuro
Ponape
Yap Colina

(2) Alaska: King Salmon
Bethel

(3) Colorado: Alamosa

(4) Washington: Dallesport

g. Runway Visual Range (52 locations)

(1) Alaska: Juneau
King Salmon
Bethel
Cold Bay
Kenai
Fairbanks

(2) Arizona: Phoenix
Tucson

(3) Connecticut: New Haven
Windsor Locks

(4) California: Bakersfield
Burbank
Carlsbad
Long Beach
Modesto
Oakland
Ontario
Sacramento
San Diego
Stockton
Sacramento

(5) Indiana: Elkhart

(6) Illinois: Bloomington
Chicago

(7) Louisiana: Esler Field

(8) Massachusetts: Boston
New Bedford
Worcester

(9) Michigan: Detroit Metro (2)
Lansing

(10) Minnesota: Rochester

(11) North Dakota: Minot

(12) New Hampshire: Manchester

(13) Nevada: Las Vegas
Reno

(14) New York: Ithaca
Poughkeepsie

(15) Pennsylvania: Lancaster
Reading
Pittsburgh

(16) Rhode Island: Providence

(17) Texas: San Antonio

(18) West Virginia: Morgantown

(19) Colorado: Grand Junction

(20) Florida: Jacksonville

(21) North Carolina: Asheville

(22) New Jersey: Newark

(23) Washington: Bellingham
Pasco

(24) Tennessee: Nashville

(25) Arkansas: Ft. Smith

h. VHF Omnidirectional Range (20 locations)

(1) Arizona: Gila Bend
    Prescott
    Quail Mesa
    Flagstaff

(2) Iowa: Cedar Rapids

(3) Illinois: Evansville

(4) Arkansas: Marvell

(5) Louisiana: Cocos
    Walke

(6) Michigan: Manistique
    Mount Pleasant

(7) Minnesota: Baudette

(8) New Mexico: Santa Rosa

(9) South Dakota: Buffalo

(10) Texas: Woodville
    East Bernard
    Uvalde
    Stonewall

(11) Wisconsin: Racine

(12) Wyoming: New Castle

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Overtime

		Actual FY 1990	Actual FY 1991	Actual FY 1992	(Est.) FY 1993	(Est.) FY 1994
FIELD MAINTENANCE	Hours	229,800	251,416	199,866	218,577	218,577
	Amount ($000)	6,128	6,616	5,978	6,330	6,330
ENGINEERING	Hours	13,754	9,157	9,322	8,455	8,455
	Amount ($000)	282	185	224	214	214
PLANNING, DIRECTION AND EVALUATION	Hours	4,353	4,242	8,111	6,616	6,616
	Amount ($000)	147	141	213	190	190
Total	Hours	247,907	264,815	217,299	233,648	233,648
	Amount ($000)	6,557	6,942	6,415	6,734	6,734

	FY 1991		FY 1992		FY 1993		FY 1994	
Retirements	Eligible	Actual	Eligible	Actual	Eligible	Estimate	Eligible	Estimate
Field Maintenance	1,372	375	1,373	246	1,365	348	1,283	327

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Staffing Information

FTP Positions	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
FM	9,265	9,533	9,711	9,738	(365)	9,373
ENG	523	456	495	532	(24)	508
PD&E	657	599	642	721	(23)	698
TOTAL	10,445	10,586	10,848	10,991 1/	(412)	10,579
Ceiling FTE's						
FM	8,831	8,922	9,009	9,197	(119)	9,078
ENG	487	456	466	464	0	464
PD&E	618	605	692	638	(2)	636
TOTAL	9,938	9,983	10,167	10,299 1/	(121)	10,178
End of Year Employment Information						
FM	8,904	8,994	8,995	9,160	(237)	8,923
ENG	482	464	433	507	(24)	483
PD&E	606	609	680	791	(37)	754
TOTAL	9,992	10,067	10,108	10,458	(298)	10,160

1/ Forty-five positions transferred to the NAS Logistics Support budget activity to support the Exchange and Repair function and 190 FTP and 181 FTE's transferred from the Air Traffic Control budget activity to establish the new Operational Support Service (AOS). FY 1993 also reflects a reduction of two positions as part of an agency initiative to resolve full-time permanent position disparities. The positions are now more in line with full-time equivalent employment and on-board staffing.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Resource Summary ($000)

		(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
FIELD MAINTENANCE	PC&B	$448,912	$472,438	$507,003	$547,906	($8,146)	$539,760
	O.O.	146,006	167,605	174,393	191,044	27,125	$218,169
	TOTAL	$594,918	$640,041	$681,396	$738,950	$18,979	$757,929
ENGINEERING	PC&B	$37,459	$29,405	$31,139	$33,201	$79	$33,280
	O.O.	17,308	10,465	8,426	6,807	8	6,815
	TOTAL	$54,767	$39,870	$39,565	$40,008	$87	$40,095
PD&E	PC&B	$34,366	$42,425	$47,177	$48,887	$122	$49,009
	O.O.	18,232	13,495	17,333	19,615	(212)	19,403
	TOTAL	$52,598	$55,920	$64,510	$68,502	($90)	$68,412
TOTAL	PC&B	$520,737	$544,266	$585,319	$629,994	($7,945)	$622,049
	O.O.	181,546	191,565	200,152	217,466	26,921	244,387
	TOTAL	$702,283	$735,831	$785,471	$847,460 1/	$18,976	$866,436

1/ Reflects the transfer of $11,350,500 from the Operation of Traffic Control System budget activity to establish the New Operational Support Service (AOS).

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

The estimate for FY 1994 provides a net change of $18,976,000, –412 FTP positions, and –121 FTE's from the FY 1993 level. Changes in requirements for FY 1994 follow:

	($000) TOTAL	FIELD MAINT.	ENGINEERING	PD&E
FY 1993 Civilian Employment Reduction	($3,039)	(2,644)	(152)	(243)
Mandatory Wage Increases (Net)	$5,629	$4,896	$297	$436
Inflationary Increases	5,960	5,650	135	175
Subtotal, Non–Discretionary Changes	8,550	7,902	280	368
Program Decreases				
FY 1994 Civilian Employment Reduction (FTE)	(7,393)	(7,256)	(66)	(71)
Administrative Reductions	(3,271)	(2,875)	(98)	(298)
Administrative Travel Reduction	(978)	(860)	(29)	(89)
Pay Demonstration Project	(3,232)	(3,232)	0	0
Subtotal, Program Decreases	(14,874)	(14,223)	(193)	(458)
Program Increases				
Contract Maintenance	21,123	21,123	0	0
DOD Base Closures	4,177	4,177	0	0
Subtotal, Program Increases	25,300	25,300	0	0
TOTAL NET CHANGE	$18,976	$18,979	$87	($90)

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Non-discretionary Changes $8,550,000

1. The request includes a decrease of -$3,039,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Wage increases totaling $5,629,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and the annualized costs of the FY 1993 pay raise. These increases have been offset by -$7,342,000 for anticipated retirements and turnover.

3. Price increases totaling $5,960,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as travel, transportation, supplies, and maintenance support contracts.

Program Decreases .... -412 FTP positions, -121 FTE's, and -$14,874,000

1. Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -412 FTP positions, -121 FTE savings and -$7,393,000 are reflected. The FTE savings will be acquired through attrition.

2. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Systems Maintenance reduction in administrative expenses will result in savings of -$3,271,000. Administrative reductions have been applied to the object class 20 series.

3. Additional savings of -$978,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

4. The request includes a decrease of -$3,232,000 in the pay demonstration project. These savings result from terminating the project in September 1993 -- nine months ahead of schedule.

   On March 19, 1989, the Office of Personnel Management approved a five-year FAA pay demonstration project to be implemented on June 18, 1989, and expire on June 17, 1994. The objective of this project was to test whether a pay allowance of up to 20% would improve the FAA's ability to recruit and retain highly qualified safety personnel at "hard-to-staff" facilities in the New York, Chicago, San Francisco, and Los Angeles areas. For the Systems Maintenance program, the project covers 286 field maintenance employees at 7 Airway Facilities Sector locations. By the end of September 1993, there will be more than four years of data from the project. Terminating the project will not compromise the project or the evaluation of the project.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

Program Increases $25,300,000

1. $21,123,000 over a FY 1993 base of $37,411,000 will provide contractual support for maintenance of NAS facilities and equipment. The contract maintenance program is an essential part of the FAA's NAS equipment maintenance strategy.

   a) $14,123,000 of the request is to meet new requirements such as maintenance support for peripheral adapter module replacement item (PAMRI), along with substantial increases in the numbers of units being installed to support existing requirements. It is more cost effective to maintain these systems by contract because they have been built by companies that have existing infrastructures for spare parts and supplies. The increase in contracted maintenance will ensure a clean "hand-off" from F&E to operations support so that critical maintenance of these highly complex systems can continue without degradation to safety.

   b) $7,000,000 of the request for contract maintenance is essentially for software maintenance support at the FAA Technical Center (ACT). The Operational Support Service (AOS), at the ACT, is responsible for analyzing and resolving national and system-wide problems in the areas of hardware, firmware and Peripheral Adapter Module Replacement Item (PAMRI) system software. The System Support Computer Complex (SSCC) has the capability of distributing new software versions and their related documentation to operational sites after testing and verification. The Operational Support Service is also responsible for: second level field support for the Initial Sector Suite System (ISSS); and analyzing, reproducing, and resolving national and system-wide problems for ISSS hardware, firmware and system software.

2. $4,177,000 over a zero FY 1993 base will provide for the operation and maintenance of Department of Defense (DOD) facilities that the FAA will be required to takeover. Reorganization of DOD has resulted in closure of several military installations. At certain DOD base closure locations, the FAA will be required to operate and maintain DOD facilities that support the NAS (i.e., providing personnel, training and logistics support to service DOD equipment not currently within the FAA inventory). Air Force bases (AFB) impacted and FY 1994 cost information follow:

   a) Grissom AFB, IN (Great Lakes Region), $700,000: Realignment of this base is scheduled for March 30, 1994. It will continue to be used by the United States Air Force (USAF) Reserve. Tower services, along with operation and maintenance of the NAVAIDS and ILS, are expected to be contracted out by the USAF Reserve unit. FAA expects to take over the approach radar services to satellite commercial airports now performed by the USAF. Transition requirements include upgrading air/ground communications equipment and remoting of radar data to the Indianapolis Terminal Radar Approach Control (TRACON) facility.

   b) Wurtsmith AFB, IN (Great Lakes Region), $200,000: This base is scheduled to close on June 30, 1993. The Great Lakes Region will take over operations and maintenance of 20 radios and the Wurtsmith VORTAC. The Wurtsmith VORTAC currently supports a Victor Airway used by air carriers traversing the northern Michigan region. Funding is needed to support new FAA operational requirements.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

c) Williams AFB, AZ (Western Pacific Region), $198,000: Closure of this base is scheduled for September 30, 1993. The Williams AFB VORTAC is used to support approaches for Chandler/Stellar Air Park. High altitude air route structures used by Albuquerque Center are also supported by this VORTAC. Funding is needed to support these newly identified requirements.

d) Myrtle Beach AFB, SC (Southern Region), $2,379,000: Closure of this base has taken place as scheduled on March 31, 1993, and will have a significant impact on civil aviation and the regional air traffic mission. Myrtle Beach is a joint use airport and the USAF RAPCON located there provides approach control services to several satellite airports in addition to local traffic. It is currently a Category III airport and satisfies criteria for FAA support of navigational facilities and air traffic services. The USAF turned over operation of the RAPCON on October 1, 1992. Funds required include training costs in support of in-place DOD equipment and the future ASR-9 installation.

e) Castle AFB, CA (Western-Pacific Region), $500,000: Closure of this base is scheduled for September 30, 1995. The increase requested is associated with costs that will occur prior to the actual closure of the base, such as training and travel of personnel, and supplies and equipment required prior to the takeover. Its RAPCON provides approach control and tower en route service in the San Joaquin Valley. The annual traffic count is approximately 185,000 operations. Currently, it provides approach control services for several civilian airports and terminal en route services on a major instrument flight rules (IFR) flyway. The RAPCON controls airspace that cannot be controlled adequately by any adjacent FAA facility due to the lack of radar coverage. Replacement facilities for this base have not been included in the FY 1994 Facilities and Equipment (F&E) budget. Plans are to remote the data from this base to the Stockton TRACON facility.

f) Base Visits and Transition Planning, $200,000: In response to base closures, the Air Force and many base closure communities have requested the FAA to provide assistance and orientation on the conversion of military airports to civil airports. During these visits, facility inspections and site surveys are accomplished. The cost per visit per 8 to 10 member team is approximately $15,000. It is anticipated that there will be a need for approximately 13 visits to support bases on the current as well as the projected closure list.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
LEASED TELECOMMUNICATIONS

	DOLLAR RESOURCES ($000)			Staffing			
					CEILING FTE		
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1. FY 1992 ACTUAL	$0	$317,572	$317,572	0	0	0	0
2. FY 1993 PROGRAM LEVEL	0	323,396	323,396	0	0	0	0
3. PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	0	11,530	11,530	0	0	0	0
4. PROGRAM REDUCTIONS (DISCRETIONARY)	0	(36,493)	(36,493)	0	0	0	0
5. RECOMMENDED PROGRAM INCREASES	0	17,201	17,201	0	0	0	0
6. FY 1994 REQUEST LEVEL	$0	$315,634	$315,634	0	0	0	0

OPERATIONS APPROPRIATION

Leased Telecommunications

General Justification

For FY 1994, the Leased Telecommunications activity will require $315,634,000. This represents a net decrease of $7,762,000 below the FY 1993 level for continuation of air traffic control and agency leased telecommunications services.

1. Air Traffic Control Telecommunications

Services provided under this subactivity represent a critical link in the process that begins with identification of a NAS requirement and ends with the commissioning and operation of a new NAS facility. The FY 1994 request for air traffic control telecommunications provides continued support for the following categories:

a. Costs FAA is required to pay under Federal statute, regulations, or Executive Order. This includes such costs as: inflation, tariff/rate increases approved by the Federal Communications Commission; and nonrecurring charges in connection with legislatively mandated recompetition of existing circuits. Costs in this category total approximately $16,300,000.

b. Requirements directly related to the operation of NAS equipment in the field. Telecommunications services are required to meet increasing data interchange requirements of new NAS equipment. Cost growth is controlled by aggressive management of the telecommunications program. New NAS systems are continually added and other facilities are changed to provide added functions. The new and changed facilities require new telecommunications services. These new requirements are being fulfilled in part through common transmission and multiplexing systems such as the Leased Interfacility NAS Communications System (LINCS), Radio Communications Link (RCL), Data Multiplexing Network (DMN), National Airspace Data Interchange Network (NADIN), etc., resulting in a cost avoidance. Projects for which communication costs are required provide a number of different benefits, including improvements in safety, capacity, and efficiency. General categories include:

Telecommunications cost savings/avoidance (e.g., DMN, RCL).

Improved availability/elimination of single point failures (e.g., LINCS).

Improved maintenance management (e.g., RMMS).

Improved satellite communications (e.g., ANICS, FAATSAT).

OPERATIONS APPROPRIATION

Leased Telecommunications

General Justification

Leased telecommunications services for all operational FAA facilities are either procured by or are contracted with:

a. Defense Commercial Communications Office (DECCO)

Air traffic control telecommunications are procured through DECCO. Department of Defense/FAA procurement of leased telecommunications services is unified to effect maximum economies to the Government. Services include: full-time long distance telephone circuits used to transmit messages pertaining to the flow and control of air traffic operating under instrument flight rule weather conditions; circuits from control points to adjacent air navigation facilities; digital data circuits for collection and distribution of weather information and reports which include Notices to Airmen (NOTAMS) concerning runway or other conditions such as inoperative air navigational aids, flight progress reports, and aircraft arrival reports; remote control circuits to connect Air Route Traffic Control Centers (ARTCC's) with remote air-to-ground transmitters and receivers which provide controllers with direct radio communications with aircraft under their control; radar remoting systems for the transmission of radar data from radar sites to ARTCC's; facsimile services to transmit weather information to Flight Service Stations (FSS's); and dedicated circuits at remote towers and FSS's.

b. Aeronautical Radio, Inc. (ARINC)

ARINC provides international air-to-ground communications for the FAA at the following gateway facilities: New York, New York; Miami, Florida; San Francisco, California; and Honolulu, Hawaii. This includes traffic and services pertaining to flight regulations, distress and safety messages, direction finding, meteorological conditions, NOTAMS, and flight information.

OPERATIONS APPROPRIATION

Leased Telecommunications

General Justification

c. Major Leased Telecommunications requirements procured through other sources include:

Telecommunications Management and Operations (TM&O) Program. The TM&O program was initiated in 1989 to manage the expanding FAA-owned telecommunications system in order to effectively achieve the projected savings associated with implementation of the Radio Communications Link, National Data Interchange Network, Data Multiplexing Network, and leased telecommunications. Specifically, it entails budgetary planning and execution, network planning, circuit engineering, performance tracking, and database management for these telecommunications systems (contracted through TSC and with private contractors).

Operational Communications Database. Funding for the Transportation Systems Center (TSC) to continue to operationally support the FAA Communications Information System during the period of transition to a new Telecommunications Management System (contracted with TSC).

National Security Emergency Preparedness (NSEP) Fee. Funding for FAA's share of the total cost of operating the Government-wide telecommunications system which insures continued Government agency access and connectivity with the Public Switched Network during national emergencies. This funding is no longer required.

Direct User Access Terminal (DUAT) Service. Provides pilots with toll free computer terminal access to aviation weather, Notices to Airmen, and flight plan filing services (contracted with private companies). This request includes a proposal to discontinue subsidizing general aviation's use of this service.

OPERATIONS APPROPRIATION

Leased Telecommunications

General Justification

2. Agency Telecommunications

This subactivity provides funding for the following FAA-wide services:

a. Intercity Federal Telecommunications System (provided through the General Services Administration).

b. Administrative Data Transmission Network which supports national systems such as the Consolidated Personnel Management Information System (DOT-wide), National Flight Data Center, Personal Property In-Use Management System, Uniform Accounting System (DOT-wide), Uniform Payroll System (DOT-wide), Aviation Safety Analysis System, Health Information System, Civil Aviation Security System, Airports Grants Management System, Logistics Inventory System, Instrument Approach Procedures, Uniform Disposal System, Maintenance Management System, Project Materiel System, Project Management System, and networking between all regions, centers, the Washington headquarters, Transportation Computer Center, Transportation Systems Center, flight inspection field offices, and four U.S. Coast Guard districts.

c. Local telephone service, switchboard operations, and commercial long distance tolls.

d. Facsimile network.

e. The aviation safety and consumer affairs hotline.

OPERATIONS APPROPRIATION

Leased Telecommunications

General Justification

Major initiatives and changes proposed for FY 1994 are summarized below, with details on the following pages.

1. Implementation costs for the Leased Interfacility NAS Communications System (LINCS). LINCS satisfies the Federal Acquisition Regulations requirement to recompete contracts that have been in place 10 years or more and greatly improves the reliability of NAS telecommunications. Transition of leased operational circuits to LINCS commenced FY 1992. This is the third year of a four-year implementation plan.

2. NAS Plan Handoff is aimed at continuing the implementation of the FAA "owned" system and providing connectivity for a variety of Capital Investment Plan projects such as the Remote Maintenance Monitoring System and the Date Multiplexing Network.

3. The ANICS satellite network is a Capital Investment Plan project designed to provide the FAA Alaskan Region with cost-effective and reliable interfacility communications capabilities. ANICS will provide telecommunications for the transmission of critical NAS voice and data between key facilities such as air traffic control and facilities, radio outlets, and radars. ANICS will carry services such as air-to-ground communications, controller to controller interphone, radar data, end computer to computer exchanges.

4. With the consolidation of the FSS's nearing completion, AFSS's are now equipped to handle increased user demand for aviation weather briefings and flight plan filing services, negating the need to continue to subsidize users for accessing private industry computer terminals i.e., Direct User Access Terminal (DUAT) Service, to obtain these services.

OPERATIONS APPROPRIATION

Leased Telecommunications

Resource Summary ($000)

	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
AIR TRAFFIC CONTROL TELECOMMUNICATIONS						
DECCO	179,622	184,633	226,978	233,553	3,247	236,800
ARINC	10,966	13,067	12,774	13,471	728	14,199
OTHER	25,239	24,652	35,742	37,161	(12,198)	24,963
AGENCY TELECOMMUNICATIONS	40,051	47,298	42,078	39,211	461	39,672
Total	255,878	269,650	317,572	323,396	(7,762)	315,634

OPERATIONS APPROPRIATION

Leased Telecommunications

The estimate for FY 1994 provides a net change of $7,762,000 below FY 1993. Changes in requirements for FY 1994 follow:

	($000) TOTAL	DECCO	ARINC	OTHER	ADMINI-STRATIVE
Inflationary Increases	8,731	6,306	364	1,002	1,059
Other Mandatory Increases	2,799	2,435	364	0	0
Subtotal, Non-discretionary Changes	11,530	8,741	728	1,002	1,059
Program Decreases					
Administrative Reductions	(10,610)	(7,612)	0	(2,200)	(598)
FY 1993 nonrecurring costs:					
Alaskan NAS Interfacility Comm Sys (ANICS)	(4,165)	(4,165)	0	0	0
FAA Telecommunications Satellite (FAATSAT) Sys	(2,775)	(2,775)	0	0	0
Leased Interfacility NAS Comm System (LINCS)	(7,643)	(7,643)	0	0	0
Regional Programs	(300)	(300)	0	0	0
DUAT Service	(11,000)	0	0	(11,000)	0
Subtotal, Program Decreases	(36,493)	(22,695)	0	(13,200)	(598)
Program Increases					
Alaskan NAS Interfacility Comm Sys (ANICS)	2,262	2,262	0	0	0
Leased Interfacility NAS Comm System (LINCS)	11,383	11,383	0	0	0
NAS Plan Handoff:					
Data Multiplexing Network (DMN)	2,000	2,000	0	0	0
Remote Maintenance Monitoring System (RMMS)	1,556	1,556	0	0	0
Subtotal, Program Increases	17,201	17,201	0	0	0
Total Net Change	(7,762)	3,247	728	(12,198)	461

OPERATIONS APPROPRIATION

Leased Telecommunications

The estimate for FY 1994 provides a net change of $7,762,000 below FY 1993. Changes in requirements for FY 1994 follow:

Non-discretionary Changes $11,530,000

Price increases totalling $8,731,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as leased communications and contractual services.

$2,799,000 will provide annualization of recurring charges funded part-year in FY 1993. These costs are for operational leased telecommunications circuits for new facility commissionings, modernization, and expansion of existing services.

Program Decreases .... -$36,493,000

Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government," dated February 10, 1993, the Leased Telecommunications reduction in administrative expenses will result in savings of -$10,610,000. Administrative reductions have been applied to the object class 20 series.

The request includes a decrease of -$14,883,000 for savings anticipated due to contract services performed in FY 1993 which will not be required in FY 1994 and one-time purchases of supplies and equipment in FY 1993 which will not be required in FY 1994. FY 1993 nonrecurring costs are as follows:

Alaskan NAS Interfacility Communications System (ANICS) - -$4,165,000

FAA Telecommunications Satellite System (FAATSAT) - -$2,775,000

Leased Interfacility NAS Communications System (LINCS) - -$7,643,000

Regional Programs - -$300,000

OPERATIONS APPROPRIATION

Leased Telecommunications

This request includes a proposal to discontinue subsidizing general aviation's use of DUAT services -$11,000,000. General aviation pilots will be able to obtain pre-flight briefings and file flight plans through either FAA Flight Service Stations (FSS) or Automated Flight Service Stations (AFSS) on an 800 number (at no personal cost). FSS consolidations are nearing completion with 59 of the 61 AFSS's already commissioned. The last two are anticipated to be on line in 1994. AFSS's are equipped with integrated communications switching systems (ICSS) that route telephone calls to the next available pilot weather briefer as users call the AFSS. Should the number of incoming calls exceed an individual AFSS's capacity or the automation system fails, calls can be rerouted to other AFSS's. The addition of these capabilities will enable the FSS/AFSS's to accommodate satisfactorily any increases in demand. If pilots prefer to augment these services or use a DUAT service exclusively, they may do so through private industry on a 900 number at a minimal individual charge.

Program Increases $17,201,000

$17,201,000 will provide National Airspace System (NAS) Plan implementation costs. FAA is currently midway through implementation of a major effort to modernize the NAS. Capital expenditures for modernization of the NAS are funded from the Facilities and Equipment appropriation. Once new systems are put in place, telecommunications costs associated with the systems are funded from the Operations appropriation. This is in addition to telecommunications costs associated with existing systems which have not yet been replaced or phased out. FAA must cover these costs as new systems are implemented and become operational. This increase provides the continued implementation of the following programs:

a. Alaskan NAS Interfacility Communications System (ANICS) $2,262,000

A Capital Investment Plan (CIP) approved project, the ANICS satellite network is a digital integrated voice and data transmission system designed to provide the FAA Alaskan Region with cost-effective and reliable interfacility communications capabilities using commercial off-the-shelf equipment and software.

ANICS earth segments will include four hub locations at each of three AFSS's and a central network hub located at the Anchorage ARTCC and multiple end-point terminals at remote sites. This system will support the FAA's strategy for cost-effective interfacility communications transmission and fulfill the requirements to provide reliability and diversity for critical NAS circuits.

OPERATIONS APPROPRIATION

Leased Telecommunications

ANICS will provide telecommunications for the transmission of current and future critical NAS voice, data, including reliable and alternate routing requirements between key facilities. The ANICS will provide backup/diversity for critical and interfacility communications, radar data, remote air-ground communications, and broadcast of weather data and other advisories, as required.

This request will provide funds to support continued implementation costs associated with Phase I. This includes costs associated with discontinuing existing circuits, rerouting tail circuits from the existing long distance carrier to the ANICS, network maintenance and operations, and leasing the satellite transponder space segments in support of the ANICS earth stations.

ANICS will be implemented in three phases. Phase I establishes diverse satellite earth station connectivity for 53 critical locations needed to support air traffic control of Instrument Flight Rules (IFR) operations and to meet NAS system specifications for system availability. The Network Control Center (NCC) will also be established at Anchorage ARTCC as part of this phase of the project.

Phase I has been divided into two sub-phases (Phases 1A and 1B). Under Phase 1A, a total of 15 redundant satellite earth station sites (4 hubs and 11 remote sites) will be deployed at critical Alaskan locations by September 1994. This initial deployment will provide the minimum, uninterrupted, en route air traffic control services if the present leased system is disrupted, causing outage of the remaining leased en route control circuits. Phase 1B will deploy 38 additional redundant satellite earth station systems. This second deployment will provide for en route air traffic control while maximizing the current leased circuit cost avoidance for Alaska.

b. Leased Interfacility NAS Communications System (LINCS) $11,383,000

LINCS satisfies requirements for (1) recompetition of circuits, (2) elimination of single point failures with improved access, and (3) improved technical performance. The Leased Interfacility NAS Communications System will replace virtually all existing dedicated leased operational circuits. Contract award was made to MCI Telecommunications Corporation on March 13, 1992. Implementation is projected for completion in FY 1995. The additional funding is required for the continued implementation of this project. The performance and cost benefits associated with LINCS cannot be realized until all operational circuits have been transitioned.

OPERATIONS APPROPRIATION

Leased Telecommunications

Planned Implementation of LINCS ($000)

	FY 92	FY 93	FY 94
o Establishment of nodes			
- 30 FAA Locations	8.3		
- 50 FAA Locations		3.0	
- 40 FAA Locations			3.5
o Installation/implementation of channels			
- 2800 channels	5.6		
- 2000 channels		4.0	
- 3000 channels			6.0
o Transition from existing to new services (up to one month overlapping service)			
- 2800 channels	1.0		
- 2000 channels		.8	
- 3400 channels	—	—	1.9
TOTAL	14.9	7.8	11.4

Current Funding Profile ($000)

FY 1992 Program	14.9
Nonrecurring costs	-13.7
Recurring costs (base for FY 1993)	1.2
FY 1993 Increase	7.8
FY 1993 Program	9.0
Nonrecurring costs	-7.6
Recurring costs (base for FY 1994)	1.4
FY 1994 Increase	11.4
FY 1994 Program	12.8

OPERATIONS APPROPRIATION

Leased Telecommunications

c. NAS Plan Handoff $3,556,000

This request includes an increase of $2,000,000 for the FAA to continue the implementation of the "owned" piece of the telecommunications assets by installing Data Multiplexing Network (DMN) equipment. This telecommunications project presents significant cost avoidance opportunities for new circuits and leased line savings for existing services.

Implementation of the NAS Plan remote maintenance monitoring system (RMMS), will continue in FY 1994. The requirements for these programs have been documented in the Future FAA Telecommunications Plan "Fuschia Book" and are in the scope of the overall Telecommunications Strategic Plan. The benefits of the Capital Investment Plan projects are realized through the successful implementation of the individual project.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
AVIATION REGULATION AND CERTIFICATION

	DOLLAR RESOURCES ($000)			Staffing			
					CEILING FTE		
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1. FY 1992 ACTUAL	$281,702	$42,033	$323,735	5,417	4,442	4,404	38
2. FY 1993 PROGRAM LEVEL	290,141	43,491	333,632	5,420	4,320	4,283	37
3. PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	9,544	1,445	10,989	0	0	0	0
4. PROGRAM REDUCTIONS (DISCRETIONARY)	(1,994)	(1,941)	(3,935)	(72)	(15)	(15)	0
5. RECOMMENDED PROGRAM INCREASES	1,801	599	2,400	0	0	0	0
6. FY 1994 REQUEST LEVEL	$299,492	$43,594	$343,086	5,348	4,305	4,268	37

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

General Justification

For FY 1994, the operation of the Aviation Regulation and Certification Program will require 5,348 FTP positions, 4,305 FTE's, and $343,086,000. This represents an increase of $9,454,000 or 2.8% over the FY 1993 level, and a reduction of -72 FTPs and -15 FTE's.

The Aviation Regulation and Certification Program includes the development, publication, and administration of the safety standards, rules, and regulations applicable to airmen, aircraft, and operations involved in all United States civil aviation throughout the world, and foreign operations into and over United States territory.

Flight Standards

This subactivity covers the cost of certification and inspection activities associated with the operation and maintenance of aircraft by air carriers and the general aviation community, air agencies and all airmen (i.e. pilots, mechanics, etc). With regard to air carriers, inspectors check qualifications of pilots and other airmen through flight tests and written examinations, and exercise continuing surveillance over enroute operations, training programs, and maintenance shops and procedures. In the general aviation area, appropriate practical and written examinations, flight tests, and surveillance are provided pilots and mechanics. Surveillance is also maintained over air taxi operations, fixed-based operators, aerial applicators, training schools, and repair stations to determine that operations and maintenance are in conformance with safety regulations.

Aircraft Certification

Included within this subactivity are the costs associated with development and administration of safety standards governing the type, production, and original airworthiness certification of aircraft, engines, propellers, appliances, and noise level certification. The FAA's responsibility in this area begins with the development of standards, continues with the examination of applications of certifications, and carries through to the engineering design and flight test phases. Following design approval, the FAA's responsibilities extend to the approval of quality control procedures for production, the determination that each product is of the proper configuration for safe operations, and the assurance that corrections are made for any difficulties encountered in actual service.

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

Planning, Direction and Evaluation

The overall planning, direction, menagement, and evaluation of the Aviation Regulation and Certification activities, as well as development of safety regulations are accomplished under this subactivity.

OPERATIONS APPROPRIATION
Aviation Regulation & Certification

Workload Measures

Activity	Volume of Activity Act. 1991	Act. 1992	Est. 1993	Est. 1994	Percent Change 1991 1992	1992 1993	1993 1994
Flight Standards *							
Airmen Certification	219,715	263,159	263,058	262,957	19.8%	0.0%	0.0%
Operator Certification	68,015	79,479	79,401	79,323	16.9%	-0.1%	-0.1%
Investigations	33,626	36,111	32,676	32,663	7.4%	-9.5%	0.0%
Inspections	336,051	389,555	395,175	400,795	15.9%	1.4%	1.4%
Enforcement	11,382	12,680	10,785	10,777	11.4%	-14.9%	-0.1%

*Flight Standards FY 1992 data is estimated. Actual data not yet available.

Activity	Act. 1991	Act. 1992	Est. 1993	Est. 1994	1991 1992	1992 1993	1993 1994
Aircraft Certification							
Public Service Indicators							
Continued Operational Safety							
Certificated Aircraft Types in Operation	967	1,056	1,056	1,056	9.2%	0.0%	0.0%
Airworthiness Directives Issued	424	348	330	325	-17.9%	-5.2%	-1.5%
Active Prime Aircraft Manufacturers with Certified Production Quality Assurance Systems	104	88	93	97	-15.4%	5.7%	4.3%
Active Manufacturers of Aircraft Materials, Parts and Appliances with Certified Production Quality Assurance Sys.	1,427	1,333	1,531	1,719	-6.6%	14.9%	12.3%
Active Representatives of the Administrator	2,923	3,183	3,485	3,634	8.9%	9.5%	4.3%
Active Organizations Holding Delegated Authority to Represent the Administrator	92	77	94	115	-16.3%	22.1%	22.3%
Accidents and Major Incidents Investigated	94	138	153	152	46.8%	10.9%	-0.7%
National Transportation Safety Board Recommendations Closed	39	40	40	40	2.6%	0.0%	0.0%

OPERATIONS APPROPRIATION
Aviation Regulation & Certification

Workload Measures

Activity	Volume of Activity Act. 1991	 Act. 1992	 Est. 1993	 Est. 1994	Percent Change 1991 1992	 1992 1993	 1993 1994
Airline and Maintenance Facility Audits and Inspections Supported	47	29	41	47	-38.3%	41.4%	14.6%
Compliance and Enforcement Cases Closed	68	75	60	79	10.3%	-20.0%	31.7%
Freedom of Information Act Requests Answered	338	298	344	358	-11.8%	15.4%	4.1%
Regulatory Policy Development							
Regulatory Amendments Issued	26	35	34	32	34.6%	-2.9%	-5.9%
Policy and Guidance Documents Issued	25	27	42	46	8.0%	55.6%	9.5%
New Certifications, Approvals, and Appointments							
New Aircraft, Aircraft Engine, and Propeller Designs Certificated	52	91	92	104	75.0%	1.1%	13.0%
Significant Aircraft, Aircraft Engine and Propeller Design Modifications Certificated	1,169	1,192	1,349	1,416	2.0%	13.2%	5.0%
Design Approvals for New Aircraft Materials, Parts, and Appliances	3,566	4,525	6,230	6,593	26.9%	37.7%	5.8%
New Prime Manufacturers Production Quality Assurance Systems Certificated	7	10	12	17	42.9%	20.0%	41.7%
New Production Quality Control Systems Approved for the Manufacture of Materials, Parts, and Appliances	81	138	300	413	70.4%	117.4%	37.7%
New Organizations Granted New Delegation of Authority to Function as Representatives to the Administrator	14	11	27	27	-21.4%	145.5%	0.0%
New Delegations of Authority Granted to Individuals to Function as Representatives of the Administrator	449	524	445	479	16.7%	-15.1%	7.6%
Airworthiness Certificates Issued	3,073	3,106	3,380	3,417	1.1%	8.8%	1.1%

OPERATIONS APPROPRIATION
Aviation Regulation & Certification

Workload Measures

Activity	Volume of Activity Act. 1991	Volume of Activity Act. 1992	Volume of Activity Est. 1993	Volume of Activity Est. 1994	Percent Change 1991 1992	Percent Change 1992 1993	Percent Change 1993 1994
Rulemaking							
Exemptions	319	344	354	360	7.8%	2.9%	1.7%
Petitions for Rulemaking	17	20	30	35	17.6%	50.0%	16.7%
Notices	20	15	25	28	-25.0%	66.7%	12.0%
Rules	50	25	41	45	-50.0%	64.0%	9.8%
Rules & Notices Review (Moratorium) 1/	0	69	0	0	100.0%	-100.0%	0.0%

1/ Pursuant to the Presidential Regulatory Moratorium. The Moratorium mandated a review of all Federal Aviation Regulations. Rulemaking actions resulting from that review are included in the FY 1993 and FY 1994 projections.

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

Resource Summary ($000)

		Actual FY 1988	Actual FY 1989	Actual FY 1990	Actual FY 1991	Actual FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
Flight Standards	PC&B	137,821	154,028	180,637	203,702	223,717	229,867	7,754	237,621
	O.O	22,265	22,725	29,867	31,859	29,488	32,065	371	32,436
	Total	160,086	176,753	210,504	235,561	253,205	261,932	8,125	270,057
Certification	PC&B	38,138	39,979	43,840	49,716	55,541	57,466	1,731	59,197
	O.O	5,784	6,015	7,741	8,354	10,347	9,334	(272)	9,062
	Total	43,922	45,994	51,581	58,070	65,888	66,800	1,459	68,259
Planning, Direction and Evaluation	PC&B	3,455	5,241	5,992	1,699	2,444	2,808	(134)	2,674
	O.O	10,234	13,229	13,938	2,552	2,198	2,092	4	2,096
	Total	13,689	18,470	19,930	4,251	4,642	4,900	(130)	4,770
TOTAL	PC&B	179,414	199,248	230,469	255,117	281,702	290,141	9,351	299,492
	O.O	38,283	41,969	51,546	42,765	42,033	43,491	103	43,594
	Total	217,697	241,217	282,015	297,882	323,735	333,632	9,454	343,086

*FY 1988–1990 reflects PD&E data prior to a reorganization which decentralized the PD&E functions

Aviation Safety Field Inspectors and Support Personnel

	FY 1992 Actual		FY 1993 Estimated		FY 1994 Request	
	AUTH Pos.	EOY Empl.	AUTH Pos.	EOY Empl.	AUTH Pos.	EOY Empl.
General Aviation Inspectors	1,834	1,430	1,834	1,431	1,822	1,414
Air Carrier Inspectors	1,324	1,066	1,324	1,074	1,312	1,058
Total, Aviation Safety Inspectors	3,158	2,496	3,158	2,505	3,134	2,472
Other Technical Safaty	448	419	445	430	428	428
Administrative/Clerical	746	566	746	544	735	541
Total, Flight Standards Program	4,352	3,481	4,349	3,479	4,297	3,441

NOTE: Technical personnel perform a variety of safety–related, nonadminstrative work. They provide vital expertise evaluating flight procedures and obstruction clearance; developing regulations; managing research on all weather operations, human factors, and state–of–the art avionics; assessing the operational impact of new NAS technologies; providing technical guidance on air carrier operations, maintenance, certification, surveillance, and enforcement; and overseeing the Accident Prevention Program.

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

Staffing Information

	Actual FY 1988	Actual FY 1989	Actual FY 1990	Actual FY 1991	Actual FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
FTP Positions								
Flight Standards	2,994	3,374	3,795	4,216	4,352	4,349	(52)	4,297
Aircraft Certification	806	823	883	926	1,020	1,025	(18)	1,007
PD&E*	72	118	120	45	45	46	(2)	44
TOTAL	3,872	4,315	4,798	5,187	5,417	5,420	(72)	5,348
Ceiling FTE's								
Flight Standards	2,734	2,948	3,265	3,441	3,553	3,433	(9)	3,424
Aircraft Certification	717	733	757	812	848	843	(5)	838
PD&E*	71	73	102	38	41	44	(1)	43
TOTAL	3,522	3,754	4,124	4,291	4,442	4,320	(15)	4,305
End-of-Year Employment								
Flight Standards	2,909	3,193	3,479	3,571	3,481	3,479	(38)	3,441
Aircraft Certification	733	751	806	854	837	862	(14)	848
PD&E*	67	96	101	40	40	43	(2)	41
TOTAL	3,709	4,040	4,386	4,465	4,358	4,384	(54)	4,330

* FY 1988–1990 reflects PD&E data prior to a reorganization which decentralized the PD&E functions.

OPERATIONS APPROPRIATION

Aviation Regulation & Certification

The estimate for FY 1994 provides a net change of $9,454,000 over FY 1993. Changes in the requirements for FY 1994 follow:

	($000) TOTAL	Flight Standards	Aircraft Certification	Planning, Direction & Evaluation
FY 93 Civilian Employment Reduction	(1,426)	(1,132)	(281)	(13)
Mandatory Wage Increase (Net)	10,970	8,595	2,434	(59)
Inflationary Increases	1,445	1,048	283	114
Subtotal, Non-Discretionary Changes	10,989	8,511	2,436	42
Program Decreases				
Cancellation of Pay Demo	(991)	(908)	(83)	0
Administrative Cost Reductions	(1,244)	(820)	(319)	(105)
Travel Reductions	(697)	(456)	(236)	(5)
FY 94 Civilian Employment Reductions (FTEs)	(1,003)	(602)	(339)	(62)
Subtotal, Program Decreases	(3,935)	(2,786)	(977)	(172)
Program Increases				
PCS Moves-return rights	2,400	2,400	0	0
TOTAL NET CHANGE	9,454	8,125	1,459	(130)

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

The estimate for FY 1994 provides a net change of $9,454,000 and a reduction of -72 FTP's, -15 FTE's over FY 1993. Changes in requirements for FY 1994 follow:

Non-discretionary Changes $10,989,000

1. The request includes a decrease of -$1,426,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Wage increases totalling $12,434,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and the annualized costs of the FY 1993 pay raise. These increases have been partially offset by -$1,464,000 for anticipated retirements and turnover.

3. Price increases totalling $1,445,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as travel, transportation, rents, contracts, permanent change of station moves, and supplies.

Program Reductions .... -72 FTP's, -15 FTE's, $-3,935,000

1. Pay Demonstration Project. This request includes a decrease of -$991,000 in the pay demonstration project. These savings result from terminating the project in September 1993 -- nine months ahead of schedule. On March 19, 1989, the Office of Personnel Management approved a five-year FAA pay demonstration project to be implemented on June 18, 1989, and expire on June 17, 1994. The objective of this project was to test whether a pay allowance of up to 20 percent would improve FAA's ability to recruit and retain highly qualified safety personnel at "hard-to-staff" facilities in the New York, Chicago, San Francisco, Los Angeles areas. For the Aviation Regulation and Certification program, the program covers 143 flight standards inspectors at 4 flight standards facilities. By the end of September 1993, there will be more than four years of data from the project. Terminating the project will not compromise the project nor the evaluation of the project.

2. Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -72 FTP's, -15 FTE's, and -$1,003,000 are reflected as savings in FY 1994. The FTE savings will be acquired through attrition.

3. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Aviation Regulation and Certification reduction in administrative expenses will result in savings of -$1,244,000. Administrative reductions have been applied against the object class 20 series.

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

3. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Aviation Regulation and Certification reduction in administrative expenses will result in savings of -$1,244,000. Administrative reductions have been applied against the object class 20 series.

4. Additional savings of -$697,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

Program Increases .... $ 2,400,000

An increase of $2,400,000 is required over a base of $1,783,000 for Permanent Change of Station (PCS) moves for the Flight Standards program. The loss of major air carrier certificates (i.e. Eastern, Pan Am, and Midway) in field offices, and dramatic increases in the international workload resulting in the establishment of both domestic and foreign based international field offices requires the ability to shift personnel from certificate losing offices to those offices where workload has increased. With minimal new hiring projected for FY 1993 and FY 1994, the majority of this redistribution of the Flight Standards work force must be accomplished through moving current on-board personnel. To achieve full deployment of employees at overseas locations will require approximately 10 additional moves. PCS funding must also be allocated for overseas employees with return rights back to the states in FY 1994. Currently, twelve overseas employees will have return rights in FY 1994. Additionally, twelve PCS's will be required to back fill behind these positions. The relocation of the Denver Flight Standards District Office to the new Denver airport will require the relocation of about 20 employees. The FY 1993 base resources will permit only 23 moves versus 69 in FY 1992 and 116 in FY 1991.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
AVIATION STANDARDS

		DOLLAR RESOURCES ($000)			Staffing			
						CEILING FTE		
		PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1.	FY 1992 ACTUAL*	$64,500	$50,523	$115,023	1,396	1,201	1,182	19
2.	FY 1993 PROGRAM LEVEL **	71,580	50,006	121,586	1,414	1,245	1,240	5
3.	PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	(882)	1,351	469	0	0	0	0
4.	PROGRAM REDUCTIONS (DISCRETIONARY)	(1,410)	(4,272)	(5,682)	(68)	(27)	(27)	0
5.	RECOMMENDED PROGRAM INCREASES	0	0	0	0	0	0	0
6.	FY 1994 REQUEST LEVEL	$69,288	$47,085	$116,373	1,346	1,218	1,213	5

* FTP Positions decreased by one from 1397 to 1396 reflecting transfer from AVS to HRM in FY 1992.

** Includes the following transfers:
Medical Program: 19 FTP's, 21 FTE's and $3855 for Drug Program from HRM to AVS
Transfer of one FTP from Registry as part of agency DS&S position realignment
Internal within AVS: 2 FTP's from Registry into HQ PD&E

OPERATIONS APPROPRIATION

Aviation Standards

General Justification

For FY 1994, the operation of the Aviation Standards program will require 1,346 FTP positions, 1,218 FTE's, and $116,373,000. This represents a net change of -$5,213,000, a decrease of -68 FTP's, and -27 FTE's from the FY 1993 level. The Aviation Standards program provides for a system of registration and recordation of airmen and aircraft as provided by Title V of the Federal Aviation Act of 1958. It also provides for monitoring the accuracy of signals emitted by the aids to air navigation. Flight procedures are developed for use by United States civil and military aviation and foreign air carriers operating into the United States. This program promotes aviation safety by assuring the health of pilots and aviators through the medical certification program and the Drug and Alcohol Abuse Prevention program.

Airmen and Aircraft Registry

This subactivity includes resources for the issuance of airmen certificates, registration of civil aircraft, and recordation of conveyances affecting title to U.S. civil aircraft components. Emphasis has been placed on modernizing the Airmen and Aircraft Registry due to requirements legislated by the FAA Drug Enforcement Assistance Act of 1988 (Public Law 100-690).

Flight Program and Management of Aircraft

This subactivity contains resources for operating costs such as fuel and line maintenance of the FAA-owned and rented aircraft, major maintenance of the FAA-owned aircraft, flight crews required to perform flight inspection and procedure functions, flight procedures specialists, flight inspection data analysis, and personnel associated with the management of aircraft. The types of aircraft operated range from relatively simple single-engine rental aircraft to long-range multi-engine aircraft. These aircraft are used for in-flight inspection of electronic aids employed in civil and military systems of air navigation, for in-flight evaluation of air traffic control and flight procedures, and transport of personnel in performance of inspection duties and other assigned job functions.

Aviation Medicine

This subactivity provides resources for staffing and operating FAA's aviation medical program. The activities of this program help maintain a high level of aviation safety and provide health and safety programs for FAA employees. Other medical programs include: drug and alcohol abuse prevention, the FAA employee drug program, airman medical certification, aviation medical examiner system, Air Traffic Controller (ATC) and other safety related occupational health programs, medical aircraft accident investigation, airman medical standards, aeromedical education and medical research direction.

OPERATIONS APPROPRIATION

Aviation Standards

Planning, Direction and Evaluation

The overall planning, direction, management, and evaluation of the Aviation Standards activities, as well as the conduct of accident investigations are programmed under this subactivity.

OPERATIONS APPROPRIATION
Aviation Standards
Workload Measures

	Volume of Activity				Percent Change		
Activity	Act. 1991	Act. 1992	Est. 1993	Est. 1994	1991 1992	1992 1993	1993 1994
FLIGHT PROGRAM AND MANAGEMENT OF AIRCRAFT							
Flight Hours							
Flight Inspection	22,329	21,779	23,050	23,000	-2.5%	5.8%	-0.2%
Support	25,618	27,265	19,001	18,869	6.4%	-30.3%	-0.7%
Training	9,560	7,947	5,945	5,945	-16.9%	-25.2%	0.0%
TOTAL	57,705	56,991	47,996	47,814			
Development of Flight Procedure	22,289	24,525	26,000	28,000	10.0%	6.0%	7.7%
Number of Facilities Requiring Flight Inspection	5,687	5,367	6,575	6,640	-5.6%	22.5%	1.0%
AIRMEN AND AIRCRAFT REGISTRY							
Aircraft Registration							
Examinations	215,155	212,442	213,874	215,321	-1.3%	0.7%	0.7%
Records Update	292,786	248,949	251,439	253,952	-15.0%	1.0%	1.0%
Correspondance	26,385	28,402	28,686	28,973	7.6%	1.0%	1.0%
Cashier	132,582	133,836	135,151	136,480	0.9%	1.0%	1.0%
Coding	52,453	52,506	53,031	53,561	0.1%	1.0%	1.0%
TOTAL	719,361	676,135	682,181	688,287			
Airmen Certification							
Examinations (applications)	237,274	234,403	235,809	237,224	-1.2%	0.6%	0.6%
Written Tests	182,008	164,579	165,566	166,560	-9.6%	0.6%	0.6%
Change of Address	83,972	82,658	83,154	83,653	-1.6%	0.6%	0.6%
Legal Actions	11,724	12,052	12,124	12,197	2.8%	0.6%	0.6%
Mail	384,102	367,470	369,476	371,493	-4.3%	0.5%	0.5%
File Maintenance	9,304	14,097	14,182	14,287	51.5%	0.6%	0.6%
TOTAL	908,384	875,259	880,311	885,394			

Aviation Standards
Workload Measures (continued)

AVIATION MEDICINE	Volume of Activity				Percent Change		
	Act. 1991	Act. 1992	Est. 1993	Est. 1994	1991 1992	1992 1993	1993 1994
Airmen Medical Certification							
Applications Processed/Received	488,700	481,658	500,900	520,900	-1.4%	4.0%	4.0%
DWI/NDR Applications Processed	24,527	25,580	26,900	28,200	4.3%	5.2%	4.8%
New Special Issuances Processed	2,150	2,495	2,795	3,095	16.0%	12.0%	10.7%
Recertified Special Issuances Processed	6,334	8,033	9,030	10,030	26.8%	12.4%	11.1%
Problem Cases (Regions)	6,886	9,924	9,000	9,000	44.1%	-9.3%	0.0%
Physical Examinations Performed:							
a. Conducted by FAA Medical Staff	8,055	7,917	7,400	7,400	-1.7%	-6.5%	0.0%
b. Out-of-Agency (AME's)	24,478	18,252	18,800	18,800	-25.4%	3.0%	0.0%
Occupational Health Program							
Number Served at Clinics	34,397	36,829	41,424	43,912	7.1%	12.5%	6.0%
Number of Screening Programs	111	157	200	200	41.4%	27.4%	0.0%
Number of Participants	6,644	8,365	8,500	9,000	25.9%	1.6%	5.9%
Aviation Industry Drug Program							
Anti-drug Plans Submitted for Review & Approval *	3,500	600	600	4,600	-82.9%	0.0%	666.7%
Anti-drug Plan Amendments Submitted	500	500	600	600	0.0%	20.0%	0.0%
Program Educational Conferences	10	5	0	0	-50.0%	-100.0%	
Audits/Investigations Conducted	16	35	160	200	118.8%	357.1%	25.0%
Number of Employers Covered In Audits	22	800	615	625	3536.4%	-23.1%	1.6%
Autopsies							
Number Autopsies Performed	448	499	520	525	11.4%	4.2%	1.0%

* FY 1994 increase due to anticipated implementation of alcohol rule.

Aviation Standards Workload Measures (Continued)	Volume of Activity Act. 1991	 Act. 1992	 Est. 1993	 Est. 1994	Percent Change 1991 1992	 1992 1993	 1993 1994
Industrial Hygiene							
Consultations/Inspections/Investigations/ Surveys	204	588	428	449	188.2%	-27.2%	4.9%
Airman Medical Education Activities Conducted At CAMI							
Airman Education Courses	254	289	290	300	13.8%	0.3%	3.4%
Number Trained	5,766	8,775	9,500	10,500	52.2%	8.3%	10.5%
AME Seminars Conducted	16	16	18	17	0.0%	0.0%	6.3%
Number Trained	1,515	1,577	1,700	1,800	4.1%	7.8%	5.9%
Certification Workshops	19	20	36	19	5.3%	80.0%	-47.2%
Number Trained	997	1,102	2,800	1,500	10.5%	154.1%	-46.4%
MRO/Program Manager Seminars	11	5	0	0	-54.5%	-100.0%	
Number Trained	629	223	0	0	-64.5%	-100.0%	
PLANNING, DIRECTION AND EVALUATION							
Accident Investigation							
NTSB Recommendations Received	133	123	110	115	-7.5%	-10.6%	4.5%
Accidents/Incidents Investigated	38	40	45	45	5.3%	12.5%	0.0%
Limited Accident/Incident Investigations Conducted	45	80	75	80	77.8%	-6.3%	6.7%
NTSB Hearings Participated	4	2	2	3	-50.0%	0.0%	50.0%
FAA Recommendations Received	331	355	400	425	7.3%	12.7%	6.3%
NTSB Request Received	127	119	125	125	-6.3%	5.0%	0.0%

OPERATIONS APPROPRIATION
Aviation Standards
AIRCRAFT FLEET

(End of Year Totals)

TYPE OF AIRCRAFT	NO. OF ENGINES & ENGINE TYPE	ACTUAL 9/30/92	ESTIMATE 9/30/93	ESTIMATE 9/30/94
1. FAA Owned –				
a. Flight Inspection and Logistics				
Rockwell Int'l Sabre 40	2 Jet	1	1	0
Rockwell Int'l Sabre 80	2 Jet	5	5	4
Convair CV-580	2 Turboprop	2	2	2
Beech BE-300	2 Turboprop	19	19	19
Beech F-90	2 Turboprop	2	2	2
British Aerospace 800A	2 Jet	6	6	6
Medium Range Aircraft	2 Jet	0	0	2
		35	35	35
b. Support				
Grumman G-159 a/	2 Turboprop	1	1	1
Beech C-90	2 Turboprop	5	5	5
Douglas DC-3	2 Piston	1	1	1
Gulfstream IV a/	2 Jet	1	1	1
		8	8	8
c. Training				
Douglas DC-9	2 Jet	1	1	0
Beech F-90	2 Turboprop	2	2	2
		3	3	2

OPERATIONS APPROPRIATION
Aviation Standards - Fleet (Continued)

	NO. OF ENGINES & ENGINE TYPE	ACTUAL 9/30/92	ESTIMATE 9/30/93	ESTIMATE 9/30/94
d. Research & Development				
Boeing B-727	3 Jet	2	1	1
Aero Commander AC-680	2 Piston	1	1	1
Convair CV-580	2 Turboprop	3	3	2
Sikorsky S-76	2 Turborotor	1	1	1
Beech BE-200	2 Turboprop	1	1	1
Bell UH-1H Helicopter	1 Turborotor	1	1	1
		9	8	7
Total FAA Owned		55	54	52
2. FAA Lease -				
a. Support				
Lear 31A a/	1 Jet	2	2	2
		2	2	2
b. Training				
Cessna CE-560	1 Jet	2	2	2
		2	2	2
Total FAA Leased		4	4	4
TOTAL FAA FLEET		59	58	56

a/ Aircraft mission also training.

OPERATIONS APPROPRIATION

Aviation Standards

Resource Summary ($000)

		(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
Flight Program & Management of Aircraft –	PC&B	37,908	38,229	42,105	44,281	(1,652)	42,629
	O.O.	29,128	35,471	37,748	36,174	(729)	35,445
	Total	67,036	73,700	79,853	80,455	(2,381)	78,074
Airmen and Aircraft Registry –	PC&B	3,078	3,608	4,773	5,336	(22)	5,314
	O.O.	1,422	1,761	1,943	1,904	(125)	1,779
	Total	4,500	5,369	6,716	7,240	(147)	7,093
Medical –	PC&B	10,679	12,375	14,274	18,295	(684)	17,611
	O.O.	8,835	7,623	8,642	10,090	(1,930)	8,160
	Total	19,514	19,998	22,916	28,385	(2,614)	25,771
Planning, Direction and Evaluation –	PC&B	5,992	2,306	3,348	3,668	66	3,734
	O.O.	13,938	3,463	2,190	1,838	(137)	1,701
	Total	19,930	5,769	5,538	5,506	(71)	5,435
TOTAL	PC&B	57,657	56,518	64,500	71,580	(2,292)	69,288
	O.O.	53,323	48,318	50,523	50,006	(2,921)	47,085
	Total	110,980	104,836	115,023	121,586	(5,213)	116,373

OPERATIONS APPROPRIATION

Aviation Standards

Staffing Information

FTP Positions	(Actual) FY 1989	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
Flight Program & Management of Aircraft	774	778	779	776	776	(38)	738
Airman and Aircraft Registry	98	98	141	210	207	(10)	197
Medical	249	256	267	368	387	(18)	369
Planning, Direction & Evaluation	118	120	41	42	44	(2)	42
TOTAL	1,239	1,252	1,228	1,396	1,414	(68)	1,346
Ceiling FTE's							
Flight Program & Management of Aircraft	717	741	708	735	725	(15)	710
Airman and Aircraft Registry	98	96	106	139	147	(4)	143
Medical	231	248	266	282	325	(7)	318
Planning, Direction & Evaluation	73	102	44	45	48	(1)	47
TOTAL	1,119	1,187	1,124	1,201	1,245	(27)	1,218

End-of-Year Employment	(Actual) FY 1989	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
Flight Program & Management of Aircraft	725	723	728	739	722	(34)	688
Airman and Aircraft Registry	95	95	139	141	164	(8)	156
Medical	233	242	261	291	313	(15)	298
Planning, Direction & Evaluation	96	101	41	44	43	(2)	41
TOTAL	1,149	1,161	1,169	1,215	1,242	(59)	1,183

FY 1993 reflects 2 FTP's transferred to PD&E from Registry (transfer internal to AVS);
and one FTP transferred from Registry as result of DS&S FTP study. FY 1993 also reflects transfer of 19 FTP's and 21 FTE's from HRM to Medical for Drug Program. FY 1993 FTP reductions reflect Executive Order to reduce positions.
FY 1992 Medical reflects transfer of one FTP to HRM.

FY 1991 reflects transfer of 3 positions as a result of the realignment of Aviation Regulations and Standards activity

FY 1988–1990 reflects PD&E data prior to a reorganization which decentralized the PD&E functions;

OPERATIONS APPROPRIATION

Aviation Standards Program ($000)

The estimate for FY 1994 provides a net change of –$5,213,000, –68 FTP's, and –27 FTE's from FY 1993. Changes in requirements for FY 1994 follow:

	($000) TOTAL	AIRCRAFT	AIRMEN AND AIRCRAFT REGISTRY	MEDICAL	PLANNING DIRECTION & EVALUATION
Mandatory Wage Increases (Net)	(541)	(552)	525	(598)	84
Inflationary Increases	1,351	976	52	283	40
FY93 FTE Reduction	(341)	(210)	(27)	(86)	(18)
Subtotal, Non–Discretionary Changes	469	214	550	(401)	106
FY 1994 Program Decreases					
FY94 FTE Reduction	(1,487)	(890)	(146)	(375)	(76)
Administrative Cost Reductions	(2,965)	(1,570)	(30)	(1,277)	(88)
Travel Reduction	(210)	(135)	(1)	(61)	(13)
Cleveland Clinic Foundation Reduction	(500)			(500)	
Registry Fee Collections	(520)		(520)		
Subtotal, Program Decreases	(5,682)	(2,595)	(697)	(2,213)	(177)
Total Net Change	(5,213)	(2,381)	(147)	(2,614)	(71)

OPERATIONS APPROPRIATION

Aviation Standards

The estimate for FY 1994 provides a net change of -68 FTP's, -27 FTE's and -$5,213,000 from FY 1993. Changes in requirements for FY 1994 follow.

Non-Discretionary Changes $469,000

1. This request includes a decrease of -$341,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Mandatory increases totalling $531,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and the annualized costs of the FY 1993 pay raise. These increases have been offset by -$1,072,000 for anticipated retirements and turnover.

3. Price increases totalling $1,351,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as travel, transportation and perdiem; communications; utilites; rents; other contract services; permanent change of station moves; supplies and materials; and recurring equipment purchases.

Program Decreases .... -68 positions, -27 FTE's, -$5,682,000

1. Per Executive Order 12839,"Reduction of 100,000 Federal Positions", dated February 10, 1993, -68 FTP's, -27 FTE's, and a -$1,487,000 in savings are reflected for FY 1994 civilian employment reductions. The FY 1994 FTE savings will be acquired through attrition in the four Aviation Standards programs: PD&E (-1); Registry (-4); Flight Program (-15); and Aviation Medicine (-7).

2. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Aviation Standards reduction in administrative expenses will result in a savings of -$2,965,000. Administrative reductions have been applied to the object class 20 series.

3. Additional savings of -$210,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

OPERATIONS APPROPRIATION

Aviation Standards

4. A reduction of -$500,000 is due to the completion, by the Cleveland Clinic Foundation of Cleveland Ohio, of a one-time Congressionally-directed project (Public Law 102-388), to initiate a definitive study to evaluate human factors related to and/or inherent in pilot error.

5. Other savings include -$520,000 for Registry Fee Collections credited to the Operations appropriation as a result of HR 3015. These savings were computed based upon anticipated workload and receipts from processing airmen certification and aircraft registration applications.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
CIVIL AVIATION SECURITY

	DOLLAR RESOURCES ($000)			Staffing			
					CEILING FTE		
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1. FY 1992 ACTUAL	$49,292	$14,428	$63,720	1,031	840	824	16
2. FY 1993 PROGRAM LEVEL	54,296	14,295	68,591	1,031	858	846	12
3. PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	1,223	418	1,641	0	0	0	0
4. PROGRAM REDUCTIONS (DISCRETIONARY)	(796)	(243)	(1,039)	(34)	(13)	(13)	0
5. RECOMMENDED PROGRAM INCREASES	0	0	0	0	0	0	0
8. FY 1994 REQUEST LEVEL	$54,723	$14,470	$69,193	997	845	833	12

OPERATIONS APPROPRIATION

Civil Aviation Security

General Justification

For FY 1994, the operation of the Civil Aviation Security Program will require 997 FTP positions, 845 FTE's and $69,193,000. This represents an increase of $602,000 over the FY 1993 level.

The Civil Aviation Security Program provides for the overall planning, direction, management, evaluation and enforcement of civil aviation security. The primary objective of the Civil Aviation Security Program is to safeguard passengers, crew, aircraft, and airports from the threat of hijacking, sabotage, and other criminal acts in accordance with the Anti-Hijacking Act of 1974 (Public Law 93-366), and the International Security and Development Cooperation Act of 1985 (Public Law 99-83). Additional legislation, such as the Anti-Drug Abuse Act of 1988 (Public Law 100-690), mandates the FAA's involvement in the fight against the flow of illegal drugs into the United States. Also, Public Law 100-235, dated January 8, 1988, mandates security for automated information systems, and requires mandatory training for all persons involved in management and use or operation of Federal computer systems that contain "sensitive information."

The Aviation Security Improvement Act of 1990 (Public Law 101-604) identified approximately three dozen actions to improve aviation security, such as the establishment of the Federal Security Manager (FSM) positions at category X airports and the civil aviation security liaison officer (SLO) positions at foreign airports.

This program has statutory responsibilities to ensure that foreign carriers operating to, from, and within the United States, and domestic carriers operating throughout the world, implement effective security programs. This includes developing countermeasures against criminal and/or terrorist threats against U.S. airports and aircraft, and providing technical assistance, training and guidance in required security measures to airports, air carriers and other regulated parties. The program includes the increased use of Federal Air Marshals (FAM's), the enhanced assessment and monitoring of foreign and domestic airports and air carriers, and the implementation of initiatives to increase civil aviation security's presence in foreign locations.

OPERATIONS APPROPRIATION
CIVIL AVIATION SECURITY

WORKLOAD MEASURES	VOLUME OF ACTIVITY 1992	(EST) 1993	(EST) 1994	(EST) 1995	PERCENT OF CHANGE 1992 1993	1993 1994	1994 1995
INVESTIGATIONS							
Internal Investigations	1,735	1,700	1,725	1,775	-2.0%	1.5%	2.9%
Regulatory Investigations	730	750	750	750	2.7%	0.0%	0.0%
Criminal Investigations	239	260	260	260	8.8%	0.0%	0.0%
Administrative Activity	17,906	18,000	19,000	20,000	0.5%	5.6%	5.3%
DUI/DWI							
Regulatory Investigations	835	985	1,135	1,285	18.0%	15.2%	13.2%
Pilots Processed	434,823	358,250	378,427	398,604	-17.6%	5.6%	5.3%
Pilots Investigated	12,582	9,600	9,818	10,036	-23.7%	2.3%	2.2%
LAW ENFORCEMENT ASSISTANCE UNITS							
Law Enforcement Assists							
Airmen	10,888	11,085	11,302	11,519	2.0%	2.0%	1.9%
Aircraft	15,739	15,912	16,230	16,548	1.1%	2.0%	2.0%
Reports of Information	3	9	15	21	200.0%	66.7%	40.0%
Records Requests							
Certified	389	397	404	411	2.1%	1.8%	1.7%
Non-certified	5,249	5,301	5,352	5,403	1.0%	1.0%	1.0%
Regulatory Investigations							
Airmen	1	5	11	19	400.0%	120.0%	72.7%
Aircraft	0	4	10	18	0.0%	150.0%	80.0%
Special Projects (Research)	116	118	120	122	1.7%	1.7%	1.7%
PERSONNEL SECURITY							
Background Investigations	2,389	2,500	2,500	2,500	4.6%	0.0%	0.0%
Clearance Waivers	339	400	400	400	18.0%	0.0%	0.0%
MATES - FBI Fingerprint Searches	2,235	2,300	2,300	2,400	2.9%	0.0%	4.3%
Adjudication Actions	2,532	2,500	2,500	2,500	-1.3%	0.0%	0.0%
Clearances Granted	2,391	2,400	2,450	2,500	0.4%	2.1%	2.0%
Industrial Security Clearances	1,051	1,100	1,200	1,300	4.7%	9.1%	8.3%

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OPERATIONS APPROPRIATION
CIVIL AVIATION SECURITY

WORKLOAD MEASURES	VOLUME OF ACTIVITY 1992	(EST) 1993	(EST) 1994	(EST) 1995	PERCENT OF CHANGE 1992 1993	1993 1994	1994 1995
INTERNAL SECURITY							
Physical Security Inspections	1,458	1,500	1,500	1,500	2.9%	0.0%	0.0%
Physical Security Surveys	39	25	25	25	-35.9%	0.0%	0.0%
Physical Security Risk/Vulnerability Assessments	95	100	100	100	5.3%	0.0%	0.0%
Identification Media	13,583	13,500	13,500	13,500	-0.6%	0.0%	0.0%
Information Security Inspections/Surveys	541	650	550	550	1.7%	0.0%	0.0%
Security Education Briefings/Presentations	254	275	300	300	8.3%	9.1%	0.0%
COMSEC Inspections	58	60	65	70	3.4%	8.3%	7.7%
Technical Inspections	112	125	150	175	11.6%	20.0%	16.7%
DRUG INTERDICTION							
Regulatory Investigations (Airmen)	204	250	250	250	22.5%	0.0%	0.0%
Regulatory Investigations (Aircraft)	181	200	200	200	10.5%	0.0%	0.0%
Criminal Investigations	16	20	20	20	25.0%	0.0%	0.0%
AIS SECURITY							
Technical Assistance	1,823	1,500	1,500	1,500	-17.7%	0.0%	0.0%
Accreditation/Certification Inspections	1,344	1,400	1,400	1,500	4.2%	0.0%	7.1%
Program Evaluations	589	600	600	600	1.9%	0.0%	0.0%
INSPECTIONS/ASSESSMENTS/NASIP							
Domestic Airport Inspections (Comprehensive & Supplemental)	1,368	1,400	1,450	1,500	2.3%	3.6%	3.4%
Domestic Air Carrier Inspections (Comprehensive & Supplemental)	9,535	10,000	10,500	11,000	4.9%	5.0%	4.8%

OPERATIONS APPROPRIATION
CIVIL AVIATION SECURITY

		VOLUME OF ACTIVITY			PERCENT OF CHANGE		
		(EST)	(EST)	(EST)	1992	1993	1994
WORKLOAD MEASURES	1992	1993	1994	1995	1993	1994	1995
Domestic Airport/Air Carrier Hazardous Materials(Comprehensive & Supplemental)	5,289	5,500	5,600	5,700	4.0%	1.8%	1.8%
Hazardous Materials at Foreign Airports	830	900	950	1,000	8.4%	5.6%	5.3%
PART 109 (Cargo Security) Surveys	100	150	150	150	50.0%	0.0%	0.0%
Domestic Foreign Air Carriers inspections at U.S Airports (Comprehensive & Supplemental)	3,157	3,300	3,400	3,400	4.5%	3.0%	0.0%
Foreign Airport Assessments (AEU/AWO Only)	148	169	170	169	14.2%	0.6%	-0.6%
U.S. Carrier Foreign Station Inspections (AEU/AWP/ANM/ASW/ASO/AEA ONLY)	266	295	295	325	10.9%	0.0%	10.2%

OPERATIONS APPROPRIATION

Civil Aviation Security

Resource Summary

	(Actual) FY 1990	(Actual) FY 1991	(Est.) FY 1992	(Est.) FY 1993	Proposed Change	(Est.) FY 1994
PC&B	$28,446	$37,862	$49,292	$54,296	427	54,723
0.0	11,822	15,989	14,428	14,295	175	14,470
TOTAL	$40,268	$53,851	$63,720	$68,591	$602	$69,193

Staffing Information

FTP Positions	684	862	1,031	1,031	(34)	997
Ceiling FTE's	557	674	840	858	(13)	845
End-of-year Employment	627	810	852	881	(29)	852

OPERATIONS APPROPRIATION

Civil Aviation Security

Authorized Staffing

CAS PROGRAM:	FY 1992		Estimated FY 1993		Estimated FY 1994	
	Positions	EOY	Positions	EOY	Positions	EOY
Field						
Agents	634	507	634	523	617	523
Support	164	145	164	132	159	132
Subtotal	798	652	798	655	776	655
Washington						
Agents	154	130	154	140	146	127
Support	79	70	79	86	75	70
Subtotal	233	200	233	226	221	197
Total CAS Program:						
Agents	788	637	788	663	763	650
Support	243	215	243	218	234	202
Total	1,031	852	1,031	881	997	852

OPERATIONS APPROPRIATION

Civil Aviation Security

The estimate for FY 1994 provides for a net change of $602,000 over the FY 1993. Changes in the requirements for FY 1994 are as follows:

Non-discretionary

	$000
FY 1993 Civilian Employment Reduction	(264)
Mandatory Wage Increase (Net)	1,487
Inflationary Increases	418
Subtotal, Non-Discretionary Changes	1,641
Program Decreases	
FY 1994 Civilian Employment Reduction	(796)
Administrative Cost Reduction	(14)
Administrative Travel Reduction	(229)
Subtotal, Program Decreases	(1,039)
Total Net Change	602

OPERATIONS APPROPRIATION

Civil Aviation Security

The estimate for FY 1994 provides a net change of $602,000, -13 FTE's and -34 FTP positions over FY 1993. Changes in requirements for FY 1994 follow.

Non-discretionary Changes $1,641,000

1. The request includes a decrease of $264,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Wage increases totaling $1,864,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and the annualized costs of the FY 1993 pay raise. These increases have been offset by -$377,000 for anticipated turnover.

3. Price increases totalling $418,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as travel, transportation, per diem and recurring equipment purchases.

Program Decreases .... -13 FTE's, -34 positions, -$1,039,000

1. Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -13 FTE savings and -$796,000 are reflected. The FTE savings will be acquired through attrition.

2. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Civil Aviation Security Program's reduction in administrative expenses will result in savings of -$14,000. Administrative reductions have been applied to the object class 20 series.

3. Additional savings of -$229,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
NAS DESIGN AND MANAGEMENT

	DOLLAR RESOURCES ($000)			Staffing			
				FTP	CEILING FTE		
	PC&B	OTHER OBJECTS	TOTAL	POS	TOTAL	FTP	OTFTP
1. FY 1992 ACTUAL	$21,562	$1,954	$23,516	565	303	294	9
2. FY 1993 PROGRAM LEVEL	37,663	17,646	55,309	529	591	570	21
3. PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	1,025	460	1,485	0	0	0	0
4. PROGRAM REDUCTIONS (DISCRETIONARY)	(817)	(454)	(1,271)	0	(12)	(12)	0
5. RECOMMENDED PROGRAM INCREASES	0	3,000	3,000	0	0	0	0
6. FY 1994 REQUEST LEVEL	$37,871	$20,652	$58,523	529	579	558	21

FY 1992 positions & FY 1993 FTE and funding reflect a baseline transfer of 264 FTP, 342 FTE's, and $36,840,000 from NAS Logistics and -6 FTP in FY 1993 consistent with the Agency's restructuring of operational management and alignment functions. FY 1993 also reflects a functional transfer of the Office of Environment and Energy to Headquarters Administration (-33 FTP, -33 FTE's, and $2,100,000).

OPERATIONS APPROPRIATION

NAS Design and Management

General Justification

For FY 1994, the NAS Design and Management (NDM) Activity will require $58,523,000, 529 positions, and 579 FTE's. This reflects a baseline transfer from the NAS Logistics Activity consistent with the Agency's restructuring of operational management and alignment functions, as well as the transfer of the Office of Environment and Energy under the Associate Administrator for Policy, Planning and International Aviation to the Headquarters Administration activity. This activity provides resources necessary to oversee Research, Engineering, and Development (RE&D) and Facilities and Equipment (F&E) programs, both in-house and contractual, required for the development and implementation of a global aviation system designed to meet user demand for increasing system safety, capacity, and productivity. This is accomplished by providing the management and leadership necessary to direct, coordinate, control, and ensure the adequacy of FAA plans and programs for system acquisitions, engineering, and management activities of the NAS. This activity also provides the resources to develop the comprehensive plans for the RE&D and CIP that are dedicated to achieving the mission of the FAA.

In FY 1993, the functions for the Associate Administrator for Contracting and Quality Assurance and the Technical Center, previously reflected in the NAS Logistics Activity, were transferred to the NAS Design and Management Activity. These resources are for the procurement and implementation of the acquisition of materiel, equipment, and services for the NAS, interagency, and international programs; and for the operation and maintenance of the entire Technical Center complex, including over 5,000 acres and 1.3 million square feet of office and laboratory space.

OPERATIONS APPROPRIATION

NAS Design and Management

Resource Summary ($000)

	Actual FY 1990	Actual FY 1991	Actual FY 1992	Est. FY 1993	Proposed Change	Est. FY 1994
PC&B	13,601	20,133	21,562	37,663	206	37,871
O.O.	4,221	3,223	1,954	17,646	3,006	20,652
Total	17,822	23,356	23,516	55,309	3,214	58,523

Staffing Information

FTP Positions	140	285	565	529	0	529
Ceiling FTE's	206	298	303	591	(12)	579
EOY Employment	266	298	430	561	(27)	554

FY 1992 (staffing) and FY 1993 (resources) reflect a baseline transfer from NAS Logistics consistent with the Agency's restructuring of operational management and alignment functions. See General Justification.

OPERATIONS APPROPRIATION

NAS Design and Management

The estimate for FY 1994 provides a net change of $3,214,000 and -12 FTE's from the FY 1993 level. Changes in requirements for FY 1994 follow:

	($000)
FY 1993 Civilian Employment Reductions	(197)
Mandatory Wage Increases(Net)	1,222
Inflationary Increases	460
Subtotal, Non-Discretionary Changes	$1,485
Program Decreases	
FY 1994 Civilian Employment Reductions	(817)
Administrative Travel Reductions	(45)
Administrative Cost Reductions	(409)
Subtotal, Program Decreases	($1,271)
Program Increases	3,000
Total Net Change	3,214

OPERATIONS APPROPRIATION

NAS Design and Management

The estimate for FY 1994 provides a net change of -12 FTE's, and $3,214,000 over FY 1993. Changes in requirements for FY 1994 follow:

Non-discretionary Changes $1,485,000

1. The request includes a decrease of -$197,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Mandatory wage increases totalling $1,222,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and, the annualized costs of FY 1993 pay raise. These increases have been offset by -$530,000 for anticipated turnover.

3. Price increases totalling $460,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as: printing, other services, travel, transportation, and per diem.

Program Decreases .... -12 FTE's, -$1,271,000

4. Per Executive Order 12839, "Reduction of 100,000 Federal Positions," dated February 10, 1993, savings of -12 FTE's and -$817,000 are reflected. The FTE savings will be acquired through attrition.

5. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government," dated February 10, 1993, the NAS Design and Management reduction in administrative expenses will result in savings of -$409,000. Administrative reductions have been applied to the object class 20 series.

6. Additional savings of -$45,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

Program Increases $3,000,000

a. $1,207,000 is required over the FY 1993 base of $6,415,000 in utilities to support purchase and payment of electrical power ($1,077,000) and natural gas service ($130,000) at the Technical Center. This activity provides utilities for all FAA activities and tenants at the Center. The pricing is based on past annual utility bills and projected increases due to additional consumption and the operation of the following new facilities:

	BASE 93	MID 1993	EOY 1993	MID 1994	TOTAL EOY 1994
Existing Facilities*	1,090,000				1,090,000
Aviation Security		27,000			27,000
Human Factors Lab		16,000			16,000
Aircraft Component Test Lab		6,600			8,600
Building 201 Annex		3,300			3,300
AAS Laboratory			185,000		185,000
Mode S and ASR-9 Support Lab				3,600	3,600
TOTAL, Square Feet					1,333,500

* Some of the square footage shown as part of the beginning base for FY 1993 includes space that is not occupied and would therefore, not consume utilities at the same rate as occupied space. The new Advanced Automation System (AAS) Laboratory is scheduled for occupancy by September 1993, but will not reach peak occupancy until after FY 1994.

The AAS Laboratory contains a 40,000 square foot test bed area which will house numerous electrical systems and consume an additional 25 watts per square foot of power of this area. This laboratory will begin to be fully utilized in FY 1994.

Twenty existing buildings and six new facilities are going to be converted from fuel oil to natural gas.

b. An additional $699,000 is required over the FY 1993 base of $5,085,000 to support the Center's Operation and Maintenance (COMS) contract for the additional 243,500 sq. ft. of laboratory space mentioned above.

This contract covers all services necessary to operate and maintain the Technical Center complex, including: ground maintenance; paving maintenance; pest control; masonry; erosion control; material handling; heavy and light equipment operations and repairs; mobile record keeping; plumbing and heating; electrical services; moving; environmental systems and refrigeration; water and sewage plant operations; central utilities plant operations; contaminated waste removal; and, elevator maintenance.

c. An additional $1,094,000 is required to ensure comprehensive management and direction for the timely acquisition, deployment and installation of the increasing number of major systems scheduled for handoff to operational status beginning in the mid-1990's. New deployments must be managed within increasingly volatile reconfiguration scenarios driven by unforeseen changes in the National Airspace System (NAS) such as the increasing number of military base closures and the changes in the consolidation of en route centers and terminal radar approach control facilities. Increased funding is required for managerial travel for site visits, increased technical consultations, renewed planning efforts, intensified matrix management coordination, and the concomitant increases in office supply and equipment costs required to support these activities. The NAS development organization responsible for these activities

OPERATIONS APPROPRIATION

NAS Design and Management

provides managerial oversight for about 46 percent of the projects of the Capital Investment Plan (CIP), accounting for approximately 59 percent of CIP funding. In the past the management of these acquisitions was conventional insofar as it was predicated on greater certainty. The shrinking economy forces revalidation/ reconfiguration of previous work. More and more we must determine which sites will not be served, operational consequences, project work arounds, and the impact on spending profiles and contractual agreements. All of these determinations must be made with greater frequency and in greater detail than in the past requiring a staff with all of the necessary administrative support. This funding will ensure continued successful management oversight of NAS development projects approaching operational handoff within an increasingly volatile NAS configuration.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
ADMINISTRATION AIRPORTS

	DOLLAR RESOURCES ($000)			STAFFING			
					CEILING FTE		
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1. FY 1992 ACTUAL	$32,884	$7,915	$40,799	550	526	508	18
2. FY 1993 PROGRAM LEVEL	35,313	5,593	40,906	550	519	501	18
3. PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	777	162	939	0	0	0	0
4. PROGRAM REDUCTIONS (DISCRETIONARY)	(732)	(216)	(948)	(28)	(11)	(11)	0
5. RECOMMENDED PROGRAM INCREASES	0	361	361	0	0	0	0
6. FY 1994 REQUEST LEVEL	$35,358	$5,900	$41,258	522	508	490	18

OPERATIONS APPROPRIATION

Administration of Airports

General Justification

For FY 1994, the Administration of Airports program will require $41,258,000, 522 FTP positions, and 508 FTE's. The request includes a net increase of $352,000 or 0.86 percent over the FY 1993 level of $40,906,000.

The Airports program covers the identification, planning, development, capacity enhancement, and safety certification of the Nation's system of public airports to serve the needs of civil aviation in the 50 States and territories. The FY 1994 request supports the FAA's continued emphasis on expansion and anticipation of future needs of the airport system.

Principal activities in the Airports program include planning and promoting efforts to enhance airport capacity and reduce delays; participating in safety planning activities for national and international airports with other organizations (including Federal, Military, State, and local agencies); administering grants for the airport improvement program; developing engineering and safety standards for airport operations; participating in the transfers of Federal land and property for civil aviation use; collecting, processing, and disseminating airport safety data; ensuring that public agencies receiving Federal assistance continue to operate airports for the benefit of the public in accordance with agreements; certifying the safety of airports; and implementing the Passenger Facility Charge (PFC) and Military Base Closures/Joint Use Initiatives.

OPERATIONS APPROPRIATION

Administration of Airports

WORKLOAD AND PERFORMANCE INDICATORS

ACTIVITY GROWTH TRENDS - FISCAL YEARS 1991-1994

	VOLUME OF ACTIVITY				PERCENT OF CHANGE		
	1991	1992	1993	1994	91-92	92-93	93-94
Airports in National Plan of Integrated Airport Systems (NPIAS)	3,692	3,708	3,716	3,724	0.4%	0.2%	0.2%
Number of Airport Improvement Program (AIP) Grants Issued	1,404	1,507	1,525	1,533	7.3%	1.2%	1.0%
Grants-in-Aid Obligation Limitation ($ in millions)*	1,800	1,900	1,800	1,879	5.6%	-5.3%	4.4%

*NOTE: FY 1993 Grants-in-Aid Obligation Limitation and AIP Grants Issued excludes $250.0 million stimulus proposal for an estimated 180 projects located at 159 airports.

OPERATIONS APPROPRIATION

Administration of Airports

Resource Summary ($000)

	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est) FY 1993	(Proposed) Change	(Est) FY 1994
PC&B	$27,284	$29,239	$32,884	$35,313	$ 45	$35,358
O.O.	9,322	8,432	7,915	5,593	307	5,900
TOTAL	$36,606	$37,671	$40,799	$40,906	$352	$41,258

Staffing

	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est) FY 1993	(Proposed) Change	(Est) FY 1994
FTP Positions	521	522	550	550	-28	522
Total Direct Ceiling FTE's	486	492	526	519	-11	508
End-of-Year Employment	473	502	507	506	-23	483

OPERATIONS APPROPRIATION

Administration of Airports

The estimate for FY 1994 provides for a net change of -28 FTP's, -11 FTE's and $352,000 over FY 1993. Changes in requirements for FY 1994 are as follows:

	TOTAL ($000's)
FY 93 Civilian Employment Reduction	$(169)
Mandatory Wage Increases (Net)	946
Inflationary Increases	162
Subtotal, Non-Discretionary Changes	$ 939
Program Decreases	
FY 94 Civilian Employment Reductions	(732)
Administrative Cost Reductions	(140)
Travel Reductions	(76)
Subtotal, Program Decreases	$(948)
Program Increases	
NASAO Contract	361
Total Net Change	$ 352

OPERATIONS APPROPRIATION

Administration of Airports

The estimate for FY 1994 provides a net change of -28 FTP's, -11 FTE's and $352,000 over FY 1993. Changes in requirements for FY 1994 follow:

Non-discretionary Changes .... $ 939,000

1. The request includes a decrease of -$169,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Wage increases totalling $1,315,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and the annualized costs of the FY 1993 pay raise. These increases have been offset by -$369,000 for anticipated retirements and turnover.

3. Price increases totalling $162,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as travel, transportation, supplies, and maintenance support contracts.

Program Decreases .... -28 positions, -11 FTE's, -$948,000

1. Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -28 FTP's, -11 FTE's, and -$732,000 are reflected as savings in FY 1994. The FTE savings will be acquired through attrition.

2. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Administration of Airports reduction in administrative expenses will result in savings of -$140,000. Administrative reductions have been applied to the object class 20 series.

3. Additional savings of -$76,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

OPERATIONS APPROPRIATION

Administration of Airports

Program Increases .... $ 361,000

This request includes an increase of $361,000 over the FY 1993 base of $1,395,000, to cover the increased costs associated with maintaining current services of the National Association of State Aviation Officials (NASAO) contract. This contract is necessary to allow the continued performance of the annual safety inspections of the nations public-use airports by the State aviation agencies. As a result of these inspections, current flight data essential to pilots will be updated and available in various aeronautical and flight information publications. Without continued support, serious safety ramifications for our national air transportation system and the flying public could result.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
DIRECTION, STAFF & SUPPORTING SERVICES

		DOLLAR RESOURCES ($000)			Staffing			
						CEILING FTE		
		PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1.	FY 1992 ACTUAL	$79,458	$72,680	$152,138	1,182	1,442	1,362	80
2.	FY 1993 PROGRAM LEVEL 1/	83,832	73,378	157,010	1,434	1,419	1,374	45
3.	PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	2,177	1,897	4,074	0	0	0	0
4.	PROGRAM REDUCTIONS (DISCRETIONARY)	(1,646)	(4,452)	(6,098)	0	(30)	(23)	(7)
5.	RECOMMENDED PROGRAM INCREASES	0	3,000	3,000	0	0	0	0
6.	FY 1994 REQUEST LEVEL	$84,163	$73,823	$157,986	1,434	1,389	1,351	38

1/ FY 1993 reflects a net increase of 252 positions. As part of an agency initiative to resolve full-time permanent position disparities 262 vacant authorized positions were transferred to the DS&SS activity. Positions are now in line with full-time equivalent employment and on board staffing. In addition, there were base transfers of 4 positions to the Headquarters Administration activity and 6 positions to the Aircraft Certification activity.

OPERATIONS APPROPRIATION

Direction, Staff and Supporting Services

General Justification

For FY 1994, the Direction, Staff, and Supporting Services (DS&SS) activity for FY 1994 will require $157,986,000; 1,434 positions; and 1,389 FTE's. This is an increase of $976,000 from the FY 1993 base of $157,010,000; 1,434 positions; and a reduction of 30 FTE's from the FY 1993 level of 1,419 FTE's.

The DS&SS activity supports all FAA organizations by providing administrative and legal services. Included are costs for administrative payrolls and supplies, communications, and other items at our Oklahoma City, Atlantic City, regional, headquarters, and European offices. Also, included in this activity is funding for automated data processing functions and Information Resource Management Plan costs which are located throughout the agency, but managed and funded in Washington.

The Direction, Staff and Supporting Services account consists of two subactivities:

Office of the Chief Counsel

For FY 1994, the Office of the Chief Counsel will require $24,626,000; 337 positions; and 319 FTE's. This is an increase of $602,000 from the FY 1993 base of $24,024,000 and a reduction of 4 FTE's from the FY 1993 level of 323 FTE's.

The Office of the Chief Counsel provides legal counsel, advice and support to every program and office within the Federal Aviation Administration. The office ensures that all legal requirements conform with all applicable laws, rules, regulations, and orders. Areas of litigation include accident and tort claims, enforcement, public hearings regarding regulatory actions, labor and personnel actions, environmental issues, and airport capacity questions.

Other Direction, Staff, and Supporting Services

For FY 1994, the other Direction, Staff, and Supporting Services will require $133,360,000; 1,097 positions; and 1,070 FTE's. This is an increase of $374,000 from the FY 1993 base of $132,986,000 and a reduction of 26 FTE's from the FY 1993 level of 1,096 FTE's.

Included in this activity in are headquarters, regional, and center activities for: Direction and Management, Public Affairs, International Aviation, Accounting, Budget, Civil Rights, Communications Control, Data Systems, and Management Systems. These regional and center programs provide the direction and staff functions and supporting services necessary for the conduct of agency activities where such services are not otherwise provided.

OPERATIONS APPROPRIATION

Direction, Staff, and Supporting Services

Resource Summary ($000)

		(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	Estimated FY 1993	Proposed Change	Estimated FY 1994
Chief Counsel	PC&B	14,016	17,275	20,282	20,757	248	21,005
	O.O.	3,325	3,580	3,085	3,267	354	3,621
	Total	17,341	20,855	23,367	24,024	602	24,626
Other DS&SS	PC&B	49,713	53,061	59,177	62,875	283	63,158
	O.O.	68,228	70,211	69,594	70,111	91	70,202
	Total	117,941	123,272	128,771	132,986	374	133,360
TOTAL	PC&B	63,729	70,336	79,459	83,632	531	84,163
	O.O.	71,553	73,791	72,679	73,378	445	73,823
	TOTAL	$135,282	$144,127	$152,138	$157,010	$976	$157,986

OPERATIONS APPROPRIATION

Direction Staff and Supporting Services

Staffing Information

		(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	Estimated FY 1993	Proposed Change	Estimated FY 1994
FTP Positions							
Chief Counsel		315	337	337	337	0	337
Other DS&SS		851	844	845	1,097	0	1,097
	Total	1,166	1,181	1,182	1,434 1/	0	1,434
Total Direct Ceiling FTE							
Chief Counsel		249	313	324	323	-4	319
Other DS&SS		1,030	1,049	1,121	1,096	-26	1,070
	Total	1,279	1,362	1,445	1,419	-30	1,389
End-of-Year Employment							
Chief Counsel		299	320	310	317	-8	309
Other DS&SS		990	1,028	1,047	1,057	-56	1,001
	Total	1,289	1,348	1,357	1,374	-64	1,310

1/ FY 1993 reflects a net increase of 252 positions. As part of an agency initiative to resolve full-time permanent position disparities 262 vacant authorized positions were transferred to the DS&SS activity. Positions are now in line with full-time equivalent employment and on board staffing. In addition, there were base transfers of 4 positions to the Headquarters Administration activity and 6 positions to the Aircraft Certification activity.

OPERATIONS APPROPRIATION

Direction, Staff, and Supporting Services

The estimate for FY 1994 provides an increase of $976,000 and a reduction of 30 FTE's from the FY 1993 level of $157,010,000 and 1,419 FTE's. Changes in requirements for FY 1994 are as follows:

	($000) TOTAL	DS&SS Other	General Counsel
FY 1993 Civilian Employment Reductions	(407)	(374)	(33)
Mandatory Wage Increases (Net)	2,584	2,167	417
Inflationary Increases	1,897	1,811	86
Subtotal, Non-Discretionary Changes	$4,074	$3,604	$470
PROGRAM DECREASES			
FY 1994 Civilian Employment Reductions	(1,646)	(1,510)	(136)
Administrative Cost Reduction	(4,323)	(4,291)	(32)
Travel Reductions	(129)	(129)	0
Subtotal, Program Decreases	($6,098)	($5,930)	($168)
PROGRAM INCREASES			
Civil Penalty Assessment	300	0	300
Regions - Civil Rights	500	500	0
Departmental Accounting & Financial Information System (DAFIS)	1,350	1,350	0
Phase II Overseas Expansion	350	350	0
Foreign Administrative Assistance Support (FAAS)	500	500	0
Subtotal, Program Increases	$3,000	$2,700	$300
TOTAL NET CHANGE	$976	$374	$602

OPERATIONS APPROPRIATION

Direction, Staff and Supporting Services

The estimate for FY 1994 provides an increase net $976,000; 0 positions; and decrease of 30 FTE's. Changes in requirements for FY 1994 follow:

Non-discretionary Changes $4,074,000

1. The request includes a decrease of -$407,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Wage increases totalling $3,338,000 are required to fund salary requirements approved in FY 1993 but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994; and annualization of the FY 1993 pay raise for one quarter in FY 1994. These increases have been offset by -$754,000 for anticipated savings due to turnover.

3. Price increases totalling $1,897,000 are required to meet inflationary needs in line with OMB's economic assumptions of 2.7 percent in such areas as travel, transportation, rents, supplies, and maintenance support.

Program Decreases . . . . -30 FTE's; -$6,098,000

1. Per Executive Order 12939, "Reduction of 100,000 Federal Positions", dated February 10, 1993, 30 FTE's savings and -$1,646,000 are reflected. The FTE savings will be accomplished through attrition.

2. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the DS&SS reduction in administrative expenses will result in savings of - $4,323,000. Administrative reductions have been applied to the object class 20 series.

3. Additional savings of -$129,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences, and meetings.

OPERATIONS APPROPRIATION

Direction, Staff and Supporting Services

Program Increases $3,000,000

Office of the Chief Counsel

Civil Penalty Assessment

An increase of $300,000 over a FY 1993 base of $554,000 is requested for the Office of General Counsel for the FY 1994 Civil Penalty Assessment Program. The program was enacted by Congress at the end of 1987 as a demonstration program and became permanent in August 1992 to promote efficiency in processing enforcement actions. Amendments to the Federal Aviation Act created a program under which the Administrator of FAA is authorized to impose civil penalties for violations of the Federal Aviation Regulations of $50,000 and under. The program provides parties an opportunity for a hearing, on the record, under the Administrative Procedures Act with the OST Office of Hearings Administrative Law Judges (ALJs). Additionally, the Office of Hearings has incurred increased workload, primarily for scheduling and maintaining case status reports, and increased costs for providing reporting services. The FAA has a reimbursable agreement with OST for costs incurred for the Civil Penalty Program that covers personnel compensation and benefits for 6 staff positions plus the overhead costs prorated according to the number of hours devoted to each operating administration's cases. The increase in this agreement is due to the rise in new cases, backload cases, inflationary costs, cost-of-living increases, and other pay adjustments.

Other Direction, Staff, and Supporting Services

Civil Rights

An increase of $500,000 over a FY 1993 base of $3,035,800 is needed by the regional civil rights offices to process external and internal complaints more efficiently under the new regulation, 29 CFR Part 1614. This regulation was effective October 1992, and was mandated by the White House and the Equal Employment Opportunity Commission (EEOC).

EEOC requires federal agencies to complete their investigations and issue a final action on a complaint within 180 days of the first filing. The regional civil rights offices have incurred an increased workload due to the decreased complaint processing time permitted. The regional civil rights offices will have to use a variety of investigative and dispute resolution methods to complete complaint processing within 180 days. If the complaint is not processed and a final ruling issued within 180 days, EEOC will perform the work and charge the agency for all associated expenses. The additional requirements for the regional civil rights offices include travel, supplies, and computer hardware and software.

OPERATIONS APPROPRIATION

Direction, Staff and Supporting Services

Department Accounting and Financial Management System (DAFIS)

An increase of $1,350,000 over a FY 1993 base of $2,100,000 is requested for FAA's costs for The Departmental Accounting and Financial Information System (DAFIS) which is managed by the Office of DAFIS Development and Implementation, M-90, the Office of the Secretary of Transportation (OST). OST recovers the total operations/maintenance cost for the operation of DAFIS by billing to each agency. The agency cost is based on their share of the total transaction volume.

The DAFIS staff was increased in 1987 to accommodate the implementation of the rest of the Department onto DAFIS and to support the increased demands on the financial system. This increased staff has been funded by DAFIS Development funds with the intention that the cost would be moved (100%) to the operational/maintenance phase in FY 1993. This will increase the modal administration operational/maintenance costs.

Phase II Overseas Expansion

$350,000 is requested for the Office of International Aviation over a FY 1993 base of $5,521,000 for the Singapore office in Phase II International Expansion for the Singapore office. The funds are needed for travel (for both TDY and PCS), transportation, rents, communications, and utilities, other contractual services supplies, and office/computer equipment. Rent, communications & utilities are for both office and residential costs. Other contractual services are budgeted for items such as security hardening, housekeeping/guard services, required physical exams and security clearances of all personnel, and the temporary storage of household goods for limited shipment posts.

Aviation activity is growing faster in the Asia-Pacific region than anywhere else in the world, and Singapore offers a compelling location for a regional office for the region. Only through a sufficient presence in this region will the FAA be able to continue to play a forceful role in safeguarding the traveling public on U.S. and foreign air carriers worldwide and preventing unnecessary obstacles to U.S. business competitiveness.

The international management office in Singapore will have management responsibility for all FAA regulatory operations in the region, including safety and security oversight. This will allow the FAA to provide administrative and managerial support to proposed new FAA Flight Standards International Field Offices and Civil Aviation Security International Field Office in the region.

Foreign Affairs Administrative Support (FAAS)

$500,000 is requested over a FY 1993 base of $2,500,000 for the Foreign Affairs Administrative Support (FAAS). FAAS funds foreign affairs administrative and support services provided by Department of State (DOS) to FAA's personnel working in overseas locations. Current funding for this activity is insufficient due to the expansion of FAA's presence overseas. FAAS costs in FY 1992 totalled $2,100,000. In

OPERATIONS APPROPRIATION

Direction, Staff and Supporting Services

FY 1993 the FAAS costs increased to $2,800,000 (an increase of $700,000 in one year). The FY 1993 costs were $300,000 more than budgeted.

Costs for this service have been increasing at an annual rate averaging between $250,000-$300,000 and are due to unfavorable exchange rates, reallocation of costs by DOS to assign a greater percentage to serviced agencies, and the effects of our increased presence overseas. To cover the shortfall of this must fund item, the Security and Flight Standards offices had to curtail their critical international programs. The $500,000 requested increase would permit the FAA to fully fund FAAS in FY 1994 without a negative program impact.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
HUMAN RESOURCE MANAGEMENT

		DOLLAR RESOURCES ($000)			Staffing			
						CEILING FTE		
		PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1.	FY 1992 ACTUAL *	$162,461	$120,888	$283,349	1,461	1,573	1,522	51
2.	FY 1993 PROGRAM LEVEL **	168,189	114,523	282,712	1,533	1,540	1,527	13
3.	PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	7,067	3,242	10,309	0	0	0	0
4.	PROGRAM REDUCTIONS (DISCRETIONARY)	(1,832)	(18,359)	(20,191)	(76)	(31)	(31)	0
5.	RECOMMENDED PROGRAM INCREASES	0	0	0	0	0	0	0
6.	FY 1994 REQUEST LEVEL	$173,424	$99,408	$272,830	1,457	1,509	1,496	13

* FTP Positions increased by one from 1,460 to 1,461 reflecting transfer from AVS to HRM in FY 1992.

** Includes a transfer of the Employee Drug Testing Program (19 Positions, 21 FTE's, and $3,855) to Medical. Also reflects an increase of 72 positions in conjunction with an agency initiative to resolve full-time permanent positions disparities. Position levels are now in line with actual full-time position usage for the Human Resource Management Activity.

OPERATIONS APPROPRIATION

Human Resource Management

General Justification

In FY 1994, the Human Resource Management (HRM) function will require 1,457 FTP, 1,509 FTE's, and $272,830,000. This represents a decrease of -$9,882,000 from the FY 1993 level. The HRM activity supports all FAA organizations by recruiting and training personnel to perform FAA's highly technical and complex job tasks. This activity also administers and develops numerous human resource management initiatives and programs which support a work force of approximately 51,000.

The Human Resource Management budget request for FY 1994 sustains a program of training for employees at all levels of the organization. A keystone of the rebuilding since the 1981 controller's strike has been the systematic design and implementation of an integrated human resource program. Significant progress has been made through the use of employee involvement and participative management techniques, organizational development programs, improved selection systems, employee surveys, and other progressive human resource management systems.

In order to improve the effectiveness and efficiency of the training program, two significant initiatives were undertaken. First, the **Flight Plan for Training** was initiated in FY 1989 to correct long-standing deficiencies within the training program. The second initiative is a shorter term effort to shorten the screening process for new air traffic controllers. The shortened screening process has been developed and fully implemented.

The new screening/training effort will accomplish several important goals. Applicants for air traffic controller positions will be screened before they are employed by the FAA, thereby avoiding applicants salary costs. Under the old system, unsuccessful candidates were usually terminated. The old system had many negative factors for all applicants, whether they were successful or not. The new screening process allows the training programs for new controllers at the FAA Academy to be expanded. Under the old system, Air Traffic Controller candidates spend nine weeks at the FAA Academy undergoing a screening process (and being provided some training in basics such as FAA rules and regulations). Graduates of the 9 week screen would then spend an average of 4 to 6 weeks in follow-on training. Under the new screening/training concept, applicants will be processed through a one week screen (before they are hired by the agency) and successful screen candidates will spend up to 28 weeks at the Academy in a true training environment (i.e. they will be taught skills that were taught in the field under the old system). This will shorten the amount of time it takes for a new controller to reach a full performance level. Beneficial effects will result both in terms of overall safety of the airspace system and training efficiency.

Three 1988 studies examined the FAA training mission, the management of air traffic training, and air traffic trainees and training methods. The results of these studies were consistent with and were validated by appraisals conducted by FAA executives, managers, and technical staff and additional outside consultants. All of these efforts concluded that training within the FAA is disjointed, with varying agendas and variable results, and the problem is system-wide, not susceptible to resolution by other than a comprehensive system-wide program of remediation.

Human Resource Management

To address these issues, FAA developed the **Flight Plan for Training**, a comprehensive design for training and strategy for change. The Flight Plan for Training will correct the weaknesses that have been identified in management controls intended to oversee the hiring and training of the safety workforces. The plan includes major initiatives in a number of functional areas:

- Management Development Strategic Plan -- The mission, curricula, and capabilities of the CMD will be revised to meet the demands and challenges of the 1990's and beyond. Several studies have been performed to determine what training is needed in light of current management competencies.
- Recruitment -- A professionally planned and staffed recruitment effort will be implemented; the recruitment process will be streamlined; and hiring time will be substantially reduced. A national recruitment plan has been established, a cadre of full time recruiters has been hired, Modular Applicant Testing & Examining System (MATES) has been implemented for Air Traffic Controllers and is being expanded to the other components of the safety-related work force, and a the implementation of recommendations resulting from job task analysis of Airway Facilities work is underway to determine future occupational requirements.
- Air Traffic Selection System -- A greatly improved screen has been developed for use before controllers are hired; advanced simulation will significantly reduce the length of the screening process. The new Air Traffic Controller Screen implemented in FY 1992 is related to this effort, but there is a longer term effort (Separation and Control Hiring Assessment) that will continue to determine further improvements to the screening process.
- Academic and Industrial Ties -- The FAA will forge a new partnership with academic and industrial communities to develop more skilled entry-level employees and ensure that FAA keeps abreast of the latest in curriculum design and advanced training technology. Numerous partnerships have been established with institutions of higher education to train students in skills that would otherwise be taught at the FAA Academy (at tax payer's expense). Under these partnerships, students study aviation disciplines in en accredited program and can then be hired by the FAA after graduation.
- The Office of Training and Higher Education (OTHE) -- OTHE was established to provide status, visibility, and focused management to the training program.

The **Flight Plan for Training** funds the sixth year of the comprehensive training initiative program as shown in the following table. The improvements envisioned by the **Flight Plan for Training** have been realized to a large extent.

OPERATIONS APPROPRIATION

Human Resource Management

	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	Non-Dis. Increase	Program Increase/Decrease	FY 1994	Total to Date
Curricula Redesign (CT)	$2,700	$2,516	$5,210	$3,524	$7,528	$213	($7,741)	0	21,478
On-the-Job Trng. Improvements (CT)	150	95	520	303	770	22	($792)	0	1,837
Management Development Strategic Plan (CT)		2,143	2,704	1,766	1,018	30	($31)	1,017	8,648
Academic & Industrial Ties (CT)		4,199	4,411	3,581	2,643	75	($2,075)	643	15,477
Office of Training and Higher Education (CT)	150	1,009	1,355	1,129	435	13	$150	598	4,676
Recruitment (LPHR)	2,500	2,411	1,929	2,303	2,493	75	($278)	2,291	13,927
Air Traffic Screen (LPHR)		75	2,893	2,660	2,279	65	($65)	2,279	10,186
Total	$5,500	$12,448	$19,022	$15,266	$17,166	$493	($10,832)	$6,828	$76,230

Accomplishment of Human Resource Management functions is divided among three major subactivities:

Centralized Training (CT) Subactivity. The FY 1994 request is $138,785,000, a decrease of -$14,906,000 over FY 1993. The major elements of this subactivity are a technical training Academy located in Oklahoma City, Oklahoma; a Center for Management Development located at Palm Coast, Florida; and an administrative and technical staff to design, develop, conduct, and administer an integrated training program to assist employees in accomplishing the agency's aviation safety objectives.

Important initiatives are also underway to transfer some of the agency training burden to private sources. The FAA has collegiate training initiative agreements with 15 institutions; Hampton University, Mid-American Aviation Research Consortium, University of Alaska Anchorage, Community College of Beaver County, University of North Dakota, McHenry County College, United Education Institute, Los Angeles Trade-Technical College, Electronics Institute, New Hampshire Technical College, New England Institute of Technology, Front

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Human Resource Management

Range Community College, Salt Lake Community College, and Bronx Community College. Graduates hired from these programs will by-pass the Academy and enter FAA facilities upon graduation from the training program.

Two thirds of our training program funds are for contractual instructional services (including approximately 100 contract instructors at the FAA Academy), student travel and per diem, training materials, and updating and modernizing existing courseware. In addition to conducting over 31,000 training enrollments in FY 1994, the program supports an on-the-job (OJT) training program, a large correspondence study program and a proficiency training program for fully certified specialists. Another major task for the training program is the review, editing, acceptance, and modification of contractor-developed courseware for training on new NAS Plan equipment as it is integrated into field facilities.

Within this subactivity falls the provision of training to all agency occupational specialties; the development, revision and maintenance of technical and managerial training courses; and the design of new programs of training as described in the Flight Plan for Training.

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Human Resource Management

The FY 1994 request for the Centralized Training subactivity (excluding the Flight Plan for Training) is $136,527,000, a net decrease of $4,770,000. This is comprised of $4,153,000 in non-discretionary increases offset by $8,923,000 in program reductions.

	FY 1990	FY 1991	FY 1992	FY 1993	Non-Dis. Increase*	Program Increase/Decrease*	FY 1994
Air Traffic	$43,186	$42,374	$36,770	$31,314	$933	($2,637)	$29,610
Airway Facilities	32,509	34,367	36,275	37,365	1,109	(1,332)	37,142
Regulatory Stnds & Compliance	33,969	33,454	35,166	33,089	961	(1,594)	32,456
Security 1/	0	2,468	2,735	2,635	76	(126)	2,585
Program Administration & Other Support	12,364	9,307	12,435	14,402	427	(1,175)	13,654
Management/General	14,291	13,087	15,711	19,964	573	(2,001)	18,536
Airports/Logistics/Instructors	3,281	2,675	3,281	2,528	74	(58)	2,544
Total	$138,650	$137,732	$142,365	$141,297	$4,153	($8,923)	$136,527

*FY 1994 non-discretionary increases and program increases/decreases.

1/ Included in Regulatory Standards in FY 1990.

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Human Resource Management

Workload Measures

CENTRALIZED TRAINING SUBACTIVITY

	Actual	Actual	Est.	Est.	Est.	Percentage Changes from Year to Year			
	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994	FY 1991	FY 1992	FY 1993	FY 1994
STUDENT DAYS									
Air Traffic	231,920	246,595	138,656	63,359	56,249	7%	-44%	-54%	-11%
(AT Initial Qual) Non add	(197,472)	(227,346)	(114,569)	(20,673)	(18,259)				
Airway Facilities	293,135	263,917	258,654	284,471	261,933	-10%	-2%	10%	-8%
(AF CBI) Non add	(47,880)	(46,950)	(27,870)	(27,560)	(27,150)				
Reg. Standards & Compliance	83,875	69,360	65,350	63,915	62,376	-17%	-6%	-2%	-2%
(Flight Training) Non add	(4,460)	(4,280)	(4,180)	(4,460)	(4,060)				
Security		17,286	13,526	10,409	10,155			-23%	-2%
Airports/Logistics/Inst.	13,162	18,845	20,072	14,230	14,313	43%	7%	-29%	1%
Management & General	47,925	45,219	46,950	52,708	52,708	-6%	4%	12%	0%
Total	670,017	663,222	543,210	489,092	457,734	-1%	-18%	-10%	-6%
ENROLLMENTS									
Air Traffic	7,814	8,376	5,754	2,629	2,334	7%	-31%	-54%	-11%
(AT Initial Qual) Non add	(5,655)	(6,511)	(3,796)	(685)	(605)				
Airway Facilities	12,113	10,906	11,620	11,881	11,767	-10%	7%	2%	-1%
(AF CBI) Non add	(4,788)	(4,895)	(2,787)	(2,756)	(2,715)				
Reg. Standards & Compliance	6,678	5,521	6,203	6,064	5,918	-17%	12%	-2%	-2%
(Flight Training) Non add	(1,115)	(1,070)	(1,045)	(1,115)	(1,015)				
Security		1,475	1,436	1,105	1,078			-23%	-2%
Airports/Logistics/Inst.	1,950	2,791	3,409	2,418	2,430	43%	22%	-29%	1%
Management & General	6,373	6,013	6,669	7,487	7,487	-6%	11%	12%	0%
Total	34,928	35,082	35,091	31,582	31,014	0%	0%	-10%	-2%

Student workload measures do not fully reflect the annual centralized training subactivity workload. In addition to class conduct, this subactivity is responsible for the development of new technical training courses; the updating and revision of current courses; the procurement, quality control, and adaptation of contractor developed courseware; and the procurement and quality control of contract instructional services.

Workload measure has changed from "Student Weeks" to "Student Days." Student days is a more relevant measure of both cost and workload. Student travel costs are based on daily per diem rates. In addition, most courses (65%) are not conducted in weekly increments, but rather may be less than a week, or several days more than 2 weeks etc.

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Human Resource Management

Labor, Personnel, and Human Relations (LPHR) Subactivity. The FY 1994 request is $132,287,000, a non discretionary increase of $5,026,000. Major elements of the LPHR subactivity are operation of the agency's consolidated personnel management information system; recruitment systems and operations; staffing analysis; pay and benefits administration; career planning; employee benefits; and management and employee/labor relations. This subactivity administers the Federal Office of Workers' Compensation Program and unemployment compensation program for the benefit of former employees.

This subactivity also includes the agency's employee survey program and organizational development activities. A significant part of this subactivity is FAA's major organizational improvement program which incorporates efforts such as the National Airspace System (NAS) Human Resource Management Plan which will provide for a more systematic integration of human resources into NAS implementation; the employee survey program which provides feedback to supervisors and managers and stimulates collaborative problem solving; and FAA-wide organizational development efforts which provide organizational consultation on a broad range of workplace issues.

A number of significant programs are aimed at improving the selection and retention of aviation professionals to operate and manage the national aviation system:

- Modular Applicant Testing and Screening (MATES) Computer systems are used to significantly reduce the time and effort involved in evaluating prospective employees.
- Supervisory Identification and Development (SIDP) Updated methods for selecting capable, human relations-oriented first level supervisors at FAA facilities.
- Employee Assistance Programs Counseling to employees with personal problems that may affect job performance, with a focus on rehabilitation and abatement.
- Employee Involvement Program Group problem solving and consensus decision-making which lead to improved labor-management relationships and communications skills.
- Employee Survey Program The Job Satisfaction Survey provides information used by senior management for top-down organizational development. The Survey Feedback Action program provides feedback to supervisors and workgroups for bottom-up improvement.

OPERATIONS APPROPRIATION

Human Resource Management

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OPERATIONS APPROPRIATION

Human Resource Management

- Organizational Development (OD) Teambuilding, strategic planning and other organizational improvements that result in a more efficient and effective organization.
- National Airspace System (NAS) Human Resource Management Planning Integrated cross-functional processes and computer models for insuring that the right numbers of qualified employees are available to install, maintain, and operate the NAS equipment and software.
- SES Candidate Development Program A more reliable predictive method for identifying top managers for the agency and providing targeted development for identified candidates.

Planning, Direction, and Evaluation (PD&E) Subactivity. The FY 1994 request is $1,758,000, a non-discretionary reduction of $2,000. This subactivity plans, directs and defines human resource program objectives, formulates standards, and evaluates the effectiveness of the agency's human resource management program. The PD&E subactivity includes the Office of the Assistant Administrator for Human Resource Management, who is responsible for policy guidance and oversight of all agency human resource management programs, and associated staff elements which provide administrative and professional evaluation services to programs administered under the Assistant Administrator's direction.

OPERATIONS APPROPRIATION

Human Resource Management

Resource Summary

	Actual 1991	Actual 1992	Estimate 1993	Proposed Change	Estimate 1994
CENTRALIZED TRAINING					
Training Program					
Personnel Compensation & Benefits	$44,481	$46,696	51,859	(876)	50,983
Other Objects	93,251	95,669	89,438	(3,894)	85,544
Subtotal	137,732	142,365	141,297	(4,770)	136,527
Flight Plan					
Personnel Compensation & Benefits	407	423	442	(1)	441
Other Objects	13,793	9,880	11,952	(10,135)	1,817
Subtotal	14,200	10,303	12,394	(10,136)	2,258
Total	151,932	152,668	153,691	(14,906)	138,785
LABOR, PERSONNEL & HUMAN RELATIONS					
HRM Programs					
Personnel Compensation & Benefits	100,033	112,506	113,035	6,118	119,153
Other Objects	14,588	10,869	9,454	(889)	8,565
Total	114,621	123,375	122,489	5,229	127,718
Flight Plan					
Personnel Compensation & Benefits	1,046	1,576	1,628	(3)	1,625
Other Objects	3,776	3,387	3,144	(200)	2,944
Subtotal	4,822	4,963	4,772	(203)	4,569
Total	119,443	128,338	127,261	5,026	132,287
PLANNING, DIRECTION & EVALUATION					
Personnel Compensation & Benefits	1,195	1,260	1,225	(2)	1,223
Other Objects	758	1,083	535	0	535
Total	1,951	2,343	1,760	(2)	1,758
TOTAL					
Personnel Compensation & Benefits	147,162	162,461	168,189	5,236	173,425
Other Objects	126,164	120,888	114,523	(15,118)	99,405
Total	$273,326	$283,349	$282,712	($9,882)	$272,830
Total Flight Plan (Memo Entry)					
Personnel Compensation & Benefits	1,453	1,999	2,070	(4)	2,066
Other Objects	17,569	13,267	15,096	(10,335)	4,761
Total	19,022	15,266	17,166	(10,339)	6,827

OPERATIONS APPROPRIATION

Human Resource Management

Staffing Information

	Actual 1991	Actual 1992	Estimate 1993	Proposed Change	Estimate 1994
FTP POSITIONS					
Centralized Training					
Training Program	767	767	828	0	776
Centralized Training Portion of Flight Plan for Training	8	8	8	0	8
Labor, Personnel & Human Relations					
HRM Programs	637	637	651	0	627
LPHR Portion of Flight Plan for Training	20	25	25	0	25
Planning, Direction, & Evaluation	24	24	21	0	21
Total	1,456	1,461	1,533	0	1,457
DIRECT CEILING FTE's					
Centralized Training					
Training Program	795	845	777	(31)	746
Centralized Training Portion of Flight Plan for Training	8	8	8	0	8
Labor, Personnel & Human Relations					
HRM Programs	679	669	701	0	701
LPHR Portion of Flight Plan for Training	21	30	30	0	30
Planning, Direction, & Evaluation	24	21	24	0	24
Total	1,527	1,573	1,540	(31)	1,509
END OF YEAR EMPLOYMENT					
Centralized Training (w/Flight Plan)	774	833	836	(62)	774
Labor, Personnel & Human Relations (w/Flight Plan)	700	638	628	(7)	621
Planning, Direction, & Evaluation	24	21	21		21
Total	1,498	1,492	1,485	(69)	1,416
Total Flight Plan (Memo Entry)					
Positions	28	33	33	0	33
FTE's	29	36	38	0	38

OPERATIONS APPROPRIATION

Human Resource Management

The estimate for FY 1994 provides a net decrease of $9,882,000 over FY 1993. Changes in requirements for FY 1994 follow:

	($000) TOTAL	CT	LPHR	PD&E
FY 1993 Civilian Employment Reduction	(442)	(422)	(20)	
Mandatory Wage Increases (Net)	1,308	692	578	40
Inflationary Increases	3,242	2,871	356	15
OWCP Increase	6,201	0	6,201	0
Subtotal, Non–Discretionary Changes	10,309	3,141	7,113	55
Program Decreases				
Travel Reduction	(2,087)	(2,079)	(8)	
Flight Plan Savings	(10,000)	(10,000)		
Administrative Savings	(6,272)	(4,820)	(1,437)	(15)
Civilian Employment Reductions	(1,832)	(1,148)	(642)	(42)
Subtotal, Program Decreases	(20,191)	(18,047)	(2,087)	(57)
Total Net Changes	(9,882)	(14,906)	5,026	(2)

OPERATIONS APPROPRIATION

Human Resource Management

The estimate for FY 1994 provides for a net decrease of -$9,882,000, -78 positions and -31 FTE's over FY 1993. Changes in funding for FY 1994 follow:

Non-discretionary Increases $10,309,000

The request includes a decrease of -$442,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 - Reduction of 100,000 Federal Positions. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

Mandatory wage increases totalling $2,979,000 are required to fund mandatory salary requirements approved in FY 1993 but effective for only a portion of the fiscal year, anticipated wage adjustments for FY 1994, and costs for the annualization of the FY 1993 pay raise for one quarter in FY 1994. These increases have been offset by -$1,871,000 for anticipated retirements for a net wage adjustment of $1,308,000.

Price increases totalling $3,242,000 are required to meet inflationary needs calculated at the OMB deflator of 2.7 percent in such areas as: travel, transportation, contracts, supplies, and equipment.

An increase of $6,201,000 for the Worker's Compensation Program (OWCP) is included. In FY 1994, $77,948,919 is needed to pay the actual Department of Labor bill for compensation costs for injuries and deaths suffered by FAA employees.

Program Decreases .... -78 positions, -31 FTE's -$20,191,000

The request includes -$2,087,000 in savings associated in reductions in travel. This savings represents an effort to decrease travel costs for Human Resource Management by approximately 5% (excluding travel reductions associated with the reduction in administrative expenses). This reduction in travel costs (coupled with savings from the reduction in administrative expenses) will be accomplished by significantly reducing conference, planning, and administrative travel. There will also be reductions in training travel, although these reductions will be carefully implemented since training travel has direct impact on the operational capabilities of the safety workforces.

OPERATIONS APPROPRIATION

Human Resource Management

The request includes programmatic reductions of -$10,000,000 in the **Flight Plan for Training**. These reductions are primarily in the area of the Curricula Redesign and Academic & Industrial Ties. Since FY 1989, about $21,500,000 has been spent on the Curricula Redesign initiative. Progress on the Curricula Redesign initiative is being reviewed to determine the extent of future funding requirements. $2,000,000 has been withdrawn from the Academic and Industrial Ties initiative. This funding has been used for the support of the Mid-America Aviation Resource Consortium (MARC). The FAA has provided funding to MARC for several years and the consortium has not used all of the funds appropriated to date. Given the lowered hiring expectations and the cumulative level of support given to MARC over the years, it is believed that this decrease can be accomplished without detrimental impacts to either the agency or the institution. The remaining programmatic reductions are spread throughout the **Flight Plan for Training** and are displayed in detail in the previous discussion of this initiative.

Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Human Resource Management reduction in administrative expenses will result in savings of -$8,272,000. Administrative reductions have been applied against object classes within the object class 20 series.

Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -31 FTE's savings in FY 1994 and -$1,832,000 are reflected. The FTE savings will be acquired through attrition. Twenty seven of the FTE reductions will come from the Airways Facilities and Regulatory Standards training programs to correspond with projected changes being made in these two training programs.

Total Net Change .... ($9,882,000)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1994 CONGRESSIONAL SUBMISSION
HEADQUARTERS ADMINISTRATION

		DOLLAR RESOURCES ($000)			STAFFING			
						CEILING FTE		
		PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTP	OTFTP
1.	FY 1992 ACTUAL	$32,035	$14,818	$48,853	493 *	501	494	7
2.	FY 1993 PROGRAM LEVEL	39,375	13,354	52,729	574 **	554	547	7
3.	PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	1,274	357	1,631	0	0	0	0
4.	PROGRAM REDUCTIONS (DISCRETIONARY)	(966)	(1,164)	(2,130)	0	(13)	(13)	0
5.	RECOMMENDED PROGRAM INCREASES	0	0	0	0	0	0	0
8.	FY 1994 REQUEST LEVEL	$39,683	$12,547	$52,230	574	541	534	7

* Reflects a base transfer of 23 positions, 23 FTE's and $0 in FY 1992 and $1,837,000 in FY 1993 for the Executive Director for Acquisition and Safety Oversight from NAS Logistics to Headquarters Administration.

** Reflects a base transfer of 33 positions, 33 FTE's and $2,100,000 in FY 1993 from NAS Design and Management. Reflects realignment of 48 positions from other Operations Activities to Headquarters Administration.

OPERATIONS APPROPRIATION

Headquarters Administration

General Justification

Headquarters Administration activity will require $52,230,000, 574 positions, and 541 FTE's for FY 1994. This represents a decrease of -$499,000 and -13 FTE's from the FY 1993 base of $52,729,000.

Headquarters Administration activity funds the Washington headquarters administrative functions that establish policy and direct and develop programs, including the Executive Director for Acquisition and Safety Oversight and the Office of Aviation Safety. The administrative services include: Office of the Administrator and Deputy Administrator, Policy and Plans, Accounting, Budget, Civil Rights, International Aviation, Management Systems and Data Systems. The Office of Aviation Safety has oversight responsibility for safety within the FAA. Due to the realignment of the NAS Logistics budget activities in FY 1992, the Executive Director for Acquisition and Safety Oversight was realigned into the Headquarters Administration activity as a base transfer in FY 1992. The Office of Environment and Energy was also realigned into the Headquarters Administration activity as a base transfer in FY 1993 from NAS Design and Management. FY 1993 also reflects realignment of 48 positions from other Operations activities into Headquarters Administration. The positions are now consistent with FTE's usages and on board staffing.

Aviation Safety

The primary objective of this program is to help the FAA maximize aviation safety. Responsibilities encompass: advising the Administrator concerning safety matters; reviewing elements of National Airspace System; developing safety education programs; monitoring safety trends; assessing the adequacy and effectiveness of evaluations and quality assurance programs within the key safety areas; developing safety indicators; and serving as the focal point for aviation safety data and information which includes the development of the Aviation Safety Advanced Analysis Program (ASAAP), formerly the National Aviation Safety Data Center (NASDC). In addition, this program conducts in-depth analyses and studies that focus on the underlying systemic causes and factors related to safety concerns. Collision avoidence, flight safety, survivability, human factors, etc, are all safety concerns which cross organizational lines. The application of analytical and appraisal disciplines yields information for FAA managers that provides an integrated, systemic perspective of safety issues and concerns in the civil aviation system.

OPERATIONS APPROPRIATION

Headquarters Administration

WORKLOAD MEASURES

	Volume of Activity				---Percent Change---		
	(Act) 1991	(Act) 1992	(Est) 1993	(Est) 1994	1991 1992	1992 1993	1993 1994
Aviation Safety							
Reports In FAA Safety Data Bases *	3,477	3,428	3,500	3,500	-1.4%	2.1%	0.0%
Safety Hotline Reports	1,109	1,047	1,300	1,400	-5.6%	2.4%	7.7%
Aviation Safety System Reports	31,242	31,883	35,000	38,000	2.1%	9.8%	8.6%

* Near midair collisions, operational errors/deviations, pilot deviations, and pedestrain/vehicle deviations.

NOTE: FY 1992 Data from:
ASRS data as of 9/30/92
NMAC, Pilot Deviation, Operational Error data as of 9/30/92
Pedestrian/Vehicle Deviation and Operational Deviation data as of 9/30/92

OPERATIONS APPROPRIATION

Headquarters Administration

Resource Summary ($000)

		(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est) FY 1993	(Propose Change	(Est) FY 1994
Administration –	PC&B	$22,223	$24,876	$27,213	$33,989	$291	$34,280
	O.O.	7,775	5,998	6,612	5,660	(854)	4,806
	Total	$29,998	$30,874	$33,825	$39,649 *	($563)	$39,086
Aviation Safety –	PC&B	$4,146	$4,788	$4,822	$5,386	$17	$5,403
	O.O.	7,885	8,215	8,206	7,694	47	7,741
	Total	$12,031	$13,003	$13,028	$13,080	$64	$13,144
TOTAL	PC&B	$26,369	$29,664	$32,035	$39,375	$308	$39,683
	O.O.	15,660	14,213	14,818	13,354	(807)	12,547
	Total	$42,029	$43,877	$48,853	$52,729	($499)	$52,230

* Reflects a base transfer of $1,837,000 from NAS Logistics and $2,100,000 from NAS Design and Management to Headquarters Administration.

OPERATIONS APPROPRIATION

Headquarters Administration

Staffing Information

FTP Positions	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Est) FY 1993	(Proposed) Change	(Est) FY 1994
Administration–	395	398	422 *	503 **	0	503
Aviation Safety–	51	64	71	71	0	71
TOTAL	446	462	493	574	0	574
Ceiling FTE's						
Administration–	431	416	436 *	485 **	(11)	474
Aviation Safety–	42	69	65	69	(2)	67
TOTAL	473	485	501	554	(13)	541
End of Year Employment						
Administration–	393	404	419	495 **	(23)	472
Aviation Safety–	49	66	63	71	(3)	68
TOTAL	442	470	482	566	(26)	540

*Reflects a base transfer of 23 positions and 23 FTE's from NAS Logistics.

**Reflects a base transfer 33 positions and 33 FTE's from NAS Design and Management. Reflects realignment of 48 positions from other Operations Activities to Headquarters Administration.

OPERATIONS APPROPRIATION

Headquarters Administration

The estimate for FY 1994 provides a decrease of –$499,000; –13 FTE's from FY 1993. Changes in requirements for FY 1994 are as follows:

	($000) TOTAL	ADMIN	AVIATION SAFETY
FY 1993 Civilian Employment Reduction (FTE's)	(203)	(178)	(25)
Mandatory Wage Increases (Net)	1,477	1,289	188
Inflationary Increases	357	146	211
Subtotal, Non–Discretionary Changes	1,631	1,257	374
FY 1994 Civilian Employment Reductions (FTE's)	(966)	(820)	(146)
Travel Reduction	(106)	(97)	(9)
Administrative Cost Reductions (Less: 3%)	(1,058)	(903)	(155)
Subtotal, Program Decreases	(2,130)	(1,820)	(310)
Total Net Change	(499)	(583)	64

OPERATIONS APPROPRIATION

Headquarters Administration

The estimate for FY 1994 provides a decrease of -$499,000; and -13 FTE's from FY 1993. Changes in requirements for FY 1994 are as follows:

Non-Discretionary Changes $1,631,000

1. The request includes a decrease of -$203,000 for the annualized cost of FTE savings taken in FY 1993. The reductions were taken in response to Executive Order 12839 "Reduction of 100,000 Federal Positions", dated February 10 1993. The savings are the result of staffing reductions made in FY 1993 below the level enacted in FY 1993.

2. Mandatory wage increases totalling $1,932,000 are required to fund mandatory salary requirements approved in FY 1993, but effective for only a portion of the fiscal year; anticipated wage adjustments for FY 1994, and costs for the annualization of the FY 1993 pay raise for one quarter in FY 1994. These increases have been offset by -$455,000 for anticipated savings due to turnover.

3. Price increases totalling $357,000 are required to meet inflationary needs in line with OMB's economic assumptions in such areas as travel, transportation, rents, contracts and supplies.

Program Decreases .... -$2,130,000, -13 FTE's

1. Per Executive Order 12839, "Reduction of 100,000 Federal Positions", dated February 10, 1993, -13 FTE's savings and -$966,000 are reflected. The FTE's savings will be acquired through attrition.

2. Additional savings of -$106,000 will be realized in reductions being taken in administrative travel and travel associated with training, conferences and meetings.

3. Per Executive Order 12837, "Deficit Control and Productivity Improvement in the Administration of the Federal Government", dated February 10, 1993, the Headquarters Administration reduction in administrative expenses will result in savings of -$1,058,000. Administrative reductions have been applied to the object class 20 series.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
MISCELLANEOUS EXPIRED ACCOUNTS
Program and Financing (in thousands of dollars)

Identification Code: 69-9912-0-1-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Program by activities:			
10.00	Total obligations (object class 25.0)	0	507	0
	Financing:			
21.40	Unobligated balance available, start of year:	-507	-507	0
24.40	Unobligated balance available, end of year	507	0	0
39.00	Budget Authority	0	0	0
	Relation of obligations to outlays:			
71.00	Total Obligations	0	507	0
72.40	Obligated balance, start of year	1,362	1,362	0
74.40	Obligated balance, end-of-year	-1,362	0	0
90.00	Outlays	0	1,869	0

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

MISCELLANEOUS EXPIRED ACCOUNTS

This schedule displays programs of Facilities, Engineering, and Development that no longer require appropriations and thus reflects outlays made under prior year appropriations.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

The Secretary of Transportation may hereafter issue notes or other obligations to the Secretary of the Treasury, in such forms and denominations, bearing such maturities, and subject to such terms and conditions as the Secretary of the Treasury may prescribe. Such obligations may be issued to pay any necessary expenses required pursuant to any guarantee issued under the Act of September 7, 1957, Public Law 85-307, as amended (49 U. S. C. 1324 note). None of the funds in this Act shall be available for activities under this head the obligations for which are in excess of $9,970,000 during fiscal year [1993] 1994. Such obligations shall be redeemed by the Secretary from appropriations authorized by this section. The Secretary of the Treasury shall purchase any such obligations, and for such purpose he may use as a public debt transaction the proceeds from the sale of any securities issued under the Second Liberty Bond Act, as now or hereafter in force. The purposes for which securities may be issued under such Act are extended to include any purchase of notes or other obligations issued under the subsection. The Secretary of the Treasury may sell any such obligations at such times and price and upon such terms and conditions as he shall determine in his discretion. All purchases, redemptions, and sales of such obligations by such Secretary shall be treated as public debt transactions of the United States. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM
Program and Financing (in thousands of dollars)

Identification Code: 69-1399-0-1-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Program by activities			
10.00	Total obligations	193	150	149
	Financing:			
39.00	Budget authority:	193	150	149
	Budget authority:			
40.00	Appropriation	1,275	0	0
40.47	Portion applied to debt reduction	-1,200	0	0
43.00	Appropriation (total)	75	0	0
47.00	Authority to borrow (97 stat. 339)	118	150	149
	Relation of obligations to outlays:			
71.00	Total obligations	193	150	149
72.47	Obligated balance, start of year: Authority to borrow	12	28	0
74.47	Obligated balance, end of year: Authority to borrow	-28	0	0
90.00	Outlays	177	178	149

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

Program and performance

This program is continuing only for the purpose of making payments to private lenders upon default of existing loans by air carriers. No new loan guarantees are being made.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

Status of Guaranteed Loans (in thousands of dollars)

Identification Code: 69-1399-0-1-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Cumulative balance of guaranteed loans outstanding:			
2210	Outstanding, start of year	45,164	36,029	26,894
2251	Repayments and prepayments	-9,135	-9,135	-9,135
2290	Outstanding, end of year	36,029	26,894	17,759
	MEMORANDUM:			
2299	Guaranteed amount of guaranteed loans outstanding, end of year	32,426	24,205	15,983

Object Classification (in thousands of dollars)

21.0	Travel and transportation of persons	5	10	9
25.2	Other services	20	17	17
43.0	Interest and dividends	168	123	123
99.0	Total obligations	193	150	149

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AVIATION INSURANCE REVOLVING FUND

The Secretary of Transportation is hereby authorized to make such expenditures and investments, within the limits of funds available pursuant to section 1306 of the Federal Aviation Act of 1958, as amended (49 U. S. C. App. 1536), and in accordance with section 104 of the Government Corporation Control Act, as amended (31 U. S. C. 9104), as may be necessary in carrying out the program [set forth in the budget for the current fiscal year] for aviation insurance activities under title XIII of the Federal Aviation Act of 1958. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Program and Financing (in thousands of dollars)

Identification Code: 69-4120-0-3-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Program by activities:			
10.00	Total obligations	122	185	195
	Financing:			
	Unobligated balance available, start of year:			
21.90	Treasury balance	-168	-160	-100
	U. S. securities:			
21.91	Par value	-52,290	-54,195	-57,855
21.92	Unrealized discounts	2,010	2,010	2,010
	Unobligated balance available, end of year:			
24.90	Treasury balance	160	100	100
	U. S. securities:			
24.91	Par value	54,195	57,855	61,455
24.92	Unrealized discounts	-2,010	-2,010	-2,010
68.00	Budget authority (gross): Spending authority from offsetting collections	2,019	3,785	3,795
	Relation of obligations to outlays:			
71.00	Total obligations	122	185	195
72.90	Obligated balance, start of year: Fund balance	49	1,109	1,109
74.90	Obligated balance, end of year: Fund balance	-1,109	-1,109	-1,109
87.00	Outlays (gross)	-939	185	195

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Program and Financing (in thousands of dollars)

Identification Code: 69-4120-0-3-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal funds	-2,009	-3,775	-3,785
88.40	Non-Federal sources	-10	-10	-10
88.90	Total, offsetting collections	-2,019	-3,785	-3,795
89.00	Budget authority (net)	0	0	0
90.00	Outlays (net)	-2,958	-3,600	-3,600

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND

Program and Performance

The fund currently provides direct support for the aviation insurance program authorized under Title XIII of the Federal Aviation Act of 1958. Income to the fund is derived from premium deposits for premium insurance coverage issued, income from authorized investments, and binder fees for non-premium coverage issued. The binders provide aviation insurance coverage for U.S. air carrier aircraft used in connection with certain Government contract operations entered into by the Department of Defense and the Department of State.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Revenue and Expense (in thousands of dollars)

Identification Code: 69-4120-0-3-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
0101	Revenue	2,019	3,785	3,795
0102	Expense	-122	-185	-195
0109	Net income or loss	1,897	3,600	3,600

Financial Condition (in thousands of dollars)

		FY 1991 Actual	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Assets:				
1000	Fund balance with Treasury and cash: Fund balance with Treasury	218	1,269	1,209	1,209
1400	Investments: Treasury securities, par	52,290	54,195	57,855	61,455
1450	Other	0	-2,010	-2,010	-2,010
1499	Subtotal, investments	52,290	52,185	55,845	59,445
1999	Total assets	52,508	53,454	57,054	60,654
	Liabilities:				
	Accounts payable:				
2000	Federal agencies	2	0	0	0
2010	Public	1	0	0	0
2099	Subtotal accounts payable	3	0	0	0
2299	Accrued payroll and benefits	7	3	3	3
2399	Accrued annual leave (funded or unfunded)	8	10	10	10
2999	Total liabilities	18	13	13	13

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Financial Condition (in thousands of dollars)

Identification Code: 69-4120-0-3-402		FY 1991 Actual	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Equity:				
	Revolving fund equity:				
	Revolving fund balances:				
3200	Appropriated capital	41	0	0	0
3210	Cumulative results	52,449	53,441	57,041	60,041
3299	Subtotal, revolving fund balances	52,490	53,441	57,041	60,041
3999	Total equity	52,490	53,441	57,041	60,041

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Object Classification (in thousands of dollars)

Identification Code: 69-4120-0-3-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
11.1	Personnel Compensation: Full-time permanent	97	111	121
11.5	Other personnel compensation	4	4	4
12.1	Civilian personnel benefits	17	18	18
21.0	Travel and transportation of persons	1	1	1
25.0	Other services	3	25	25
26.0	Supplies and materials	0	1	1
42.0	Insurance claims and indemnities	0	25	25
99.9	Total obligations	122	185	195
	Personnel Summary			
Total compensable workeyears:	Full-time equivalent employment	2	2	2

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT AND AIRWAY TRUST FUND

Unavailable collections (in thousands of dollars)

20-8103-0-7-402	1992 Actual	1993 Estimate	1994 Estimate
Balance, start of year			
U.S. securities: Par value	11,072,820	10,538,348	7,868,603
Receipts: Current law	4,644,983	5,221,441	5,682,664
Receipts: Proposed legislation			18,245
Interest	1,273,385	1,083,900	870,400
Transfer to general fund	0	-1,797,278	0
Total Receipts	5,918,368	4,508,063	6,571,309
Total Balances and net collections	16,991,188	15,046,411	14,439,912
Appropriations:			
Facilities and equipment	-2,409,000	-2,350,000	-2,417,282
Appropriation investment			-106,718
Research, engineering & development	-218,135	-230,000	-237,371
Appropriation investment			-12,629
Grants-in-aid for airports:			
Appropriation to liquidate contract authority	-1,620,000	-2,000,000	-2,184,800
Appropriation Investment			-15,200
Appropriation Stimulus		-250,000	
Trust fund share of FAA operations	-2,109,625	-2,279,321	-2,268,750
Department of Commerce: NOAA, operations, research and facilities	-35,389	0	0
GSA Rent	-29,887	-29,887	-37,114
Payments to air carriers	-38,600	-38,600	-38,600
Total appropriations	-6,460,636	-7,177,808	-7,318,464
Unobligated balance returned to receipts	7,796		
Balance, end of year			
U.S. securities: Par value	10,538,348	7,868,603	7,121,448

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT AND AIRWAY TRUST FUND

The Tax Equity and Fiscal Responsibility Act of 1982 (26 U.S.C 9502), as amended by the Omnibus Reconciliation Act of 1990 (P.L. 101-508), provides for the receipts received in the Treasury from the 10 percent passenger ticket tax and certain other taxes paid by airway users to be transferred from the general fund of the Treasury to the Airport and Airway Trust Fund. In turn, appropriations are authorized from this fund to meet obligations for airport improvement grants, facilities and equipment, research, and a portion of operations.

In 1994, legislation will be proposed to increase registration fees for general aviation aircraft. FAA studies show that operators of these aircraft account for about 26 percent of FAA costs, but pay fees covering only 7 percent of these costs. This results in an annual subsidy to these operators of about $2 billion. The proposed fee would collect $18 million in 1994.

The status of the fund is as follows (in thousands of dollars):

	1992 ACTUAL	1993 ESTIMATE	1994 ESTIMATE
Unexpended balance start of year:			
U.S. securities (par)	15,193,672	15,090,296	12,989,262
Cash	68,884	113,812	75,408
Balance of fund, start of year	15,262,556	15,204,108	13,064,670
Cash income during the year			
Government receipts from exercise taxes:			
Passenger ticket tax	4,012,360	4,581,211	4,966,773
Waybill tax	249,167	260,080	279,224
Fuel tax	166,720	144,926	183,377
International departure tax	231,326	249,224	267,290
Refund of taxes	(14,590)	(14,000)	(14,000)
Transfer General Fund (P.L. 102-581)		(1,797,278)	
Proposed GA aircraft registration:	0	0	18,245
Intrabudgetary transaction:			
Interest on investments	1,273,385	1,083,900	870,400
Total annual income	5,918,368	4,508,063	6,571,309

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT AND AIRWAY TRUST FUND

(in thousands of dollars)

	1992 ACTUAL	1993 ESTIMATE	1994 ESTIMATE
Cash outlays during the year:			
Federal Aviation Administration			
Grants-in-Aid for Airports	1,672,126	2,071,800	1,783,880
Investment	0	0	5,472
Proposed Stimulus	0	34,000	106,000
Facilities and equipment	1,884,526	1,959,500	2,117,076
Investment	0	0	21,344
Research, Engineering & Development	214,397	242,100	248,582
Investment	0	0	7,577
Operations	2,109,633	2,279,313	2,268,750
Department of Commerce: NOAA	35,389	0	0
OST: GSA Rent	29,887	29,887	37,114
OST: Payments to air carriers	30,859	30,901	38,600
Total annual outlays	5,976,817	6,647,501	6,634,395
Unexpended balance, end of year:			
U.S. securities (par)	15,090,296	12,989,262	12,926,176
Treasury balance	113,812	75,408	75,408
Balance of fund, end of year	15,204,108	13,064,670	13,001,584
Commitments against unexpended balances:			
Appropriated but not expended	-4,665,759	-5,196,066	-5,880,135
Committed to future appropriations to liquidate outstanding obligations (contract authority)	-2,893,540	-2,693,540	-2,372,540
Unobligated bal of contract authority	-772,823	-772,823	-772,823
Uncommitted cash balance, end of year	6,871,986	4,402,241	3,976,086

At the end of 1993, the uncommitted trust fund balance is estimated to be $4.4 billion. This reflects transfers of $1.8 billion to the general fund pursuant to P.L. 102-581. The 1994 funding levels, including 75 percent of FAA's budget to be financed from the trust fund, will reduce the uncommitted balance to $3.9 billion by the end of FY 1994.

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

GRANTS-IN-AID FOR AIRPORTS

(LIQUIDATION OF CONTRACT AUTHORIZATION)
(AIRPORT AND AIRWAY TRUST FUND)

For liquidation of obligations incurred for airport planning and development [under section 14 of Public Law 91-258, as amended, and under other law authorizing such obligations], and [obligations] for noise compatibility planning and programs, [$2,000,000,000] under the Airport and Airway Improvement Act of 1982, as amended, and under other law authorizing such obligations, $2,184,800,000, to be derived from the Airport and Airway Trust Fund and to remain available until expended: Provided, That none of the funds in this Act shall be available for the planning or execution of programs the commitments for which are in excess of [$1,800,000,000] $1,848,600,000 in fiscal year [1993] 1994, for grants-in-aid for airport planning and development, and noise compatibility planning and programs, notwithstanding section 506(e)(4) of the Airport and Airway Improvement Act of 1982, as amended[, of which not to exceed $122,509,900 shall be available for letters of intent issued prior to June 30, 1992]. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS (AIRPORT AND AIRWAY TRUST FUND)

Program and Financing (in thousands of dollars)

69-8106-0-7-402	92	93	94
Program by activities:			
10.00 Total obligations (object class 41)	1,905,929	1,800,000	1,848,600
Financing:			
17.00 Recovery of prior year obligations	-56,431	....	....
21.49 Unobligated balance available, start of year: Contract authority	-722,321	-772,823	-1,022,823
24.49 Unobligated balance available, end of year: Contract authority	772,823	1,022,823	1,022,823
39.00 Budget Authority	1,900,000	2,050,000	1,848,600
Budget authority:			
Current:			
40.00 Appropriation	1,620,000	2,000,000	2,184,800
40.49 Portion applied to liquidate contract authority	-1,620,000	-2,000,000	-2,184,800
43.00 Appropriation (adjusted)	....	....	....
Permanent:			
69.10 Contract authority (P.L. 100-223)	1,900,000	2,050,000	1,848,600

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS (AIRPORT AND AIRWAY TRUST FUND)

Program and Financing (in thousands of dollars)

69-8106-0-7-402	92	93	94
Relation of obligations to outlays:			
71.00 Total Obligations...............	1,905,929	1,800,000	1,848,600
Obligated balance, start of year:			
72.40 Appropriation	171,549	119,423	47,623
72.49 Contract authority	2,664,041	2,893,540	2,693,540
Obligated balance, end of year:			
74.40 Appropriation	- 119,423	- 47,623	- 448,543
74.49 Contract authority	-2,893,540	-2,693,540	-2,357,340
78.00 Adjustments in unexpired accounts.....................	-56,531	....	....
90.00 Outlays	1,672,126	2,071,800	1,783,880

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS

Program and Performance

The Airport and Airway Improvement Act of 1982, P.L. 97-248, as amended, provides for airport improvement grants with emphasize capacity development, safety and security needs. To meet these objectives, a $1,848,600,000 program level is requested for 1994. An additional $30,400,000 for 1994 is included in the separate investment budget schedules.

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Grants-in-Aid for Airports

(Liquidation of Contract Authority)
(Airport and Airway Trust Fund)

The language under this heading in the Department of Transportation and Related Agencies Appropriations Act, 1993, is amended by --

(a) deleting "$2,000,000,000" and inserting in lieu thereof "$2,250,000,000"; and

(b) deleting "$1,800,000,000" and inserting in lieu thereof "$2,050,000,000";

Provided, That the increase in commitment authority made available by this Act shall be credited entirely to the discretionary fund established by section 507(c)(1) of the Airport and Airway Improvement Act of 1982 (49 U.S.C. App. 2206(c)(1)), without regard to apportionment under sections 507(a) and 507(b) of such Act (49 U.S.C. App. 2206(a) and 2206(b)), or minimum distribution required by sections 507(c)(2) through 507(c)(4) and 508(d) of such Act (49 U.S.C. App. 2206(c)(2) - 2206(c)(4) and 2207(d)).

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS (AIRPORT AND AIRWAY TRUST FUND)

Stimulus and Other Supplemental Proposals

Program and Financing (in thousands of dollars)

69-8106-1-7-402		92	93	94
	Program by activities:			
10.00	Total obligations (object class 41)....................	....	250,000	....
	Financing:			
21.49	Unobligated balance available, start of year: Contract authority	....	....	250,000
24.49	Unobligated balance available, end of year: Contract authority	....	- 250,000	- 250,000
39.00	Budget Authority................	....	....	....
Budget authority:				
40.00	Appropriation...................	....	250,000	....
40.49	Portion applied to liquidate contract authority............	....	- 250,000	....
43.00	Appropriation (total)	....	....	....
	Relation of obligations to outlays:			
71.00	Total Obligations	....	250,000	....
72.40	Obligated Balance, start of year	....	....	216,000
74.40	Obligated Balance, end of year .	....	- 216,000	- 110,000
90.00	Outlays	....	34,000	106,000

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Grants-in-Aid for Airports
(Liquidation of Contract Authority)
(Airport and Airway Trust Fund)

Program and Performance

This supplemental request would provide $250 million in grants to airports for airport development projects, including those which expand capacity, increase safety, speed air travel and mitigate noise. The requested additional increase in liquidating cash will ensure that the obligational authority previously made available for 1993 is outlayed quickly.

The proposal would result in increased obligations of $250 million in 1993 and would increase FY 1993 outlays by $34 million. An estimated total of 800 new jobs would be generated by this proposal in FY 1993 and FY 1994. This proposal was submitted to the Congress by the President on February 22, 1993, as part of his program for short-term economic stimulus.

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Grants-in-Aid for Airports
(Liquidation of Contract Authority)
(Airport and Airway Trust Fund)

Investment Proposal

In addition to amounts otherwise available under this heading, and subject to the same terms and conditions for liquidation of obligations incurred for grants-in-aid for airports, $15,200,000. Further, the obligation limitation of $1,848,600,000 otherwise applicable under this head for fiscal year 1994 is increased by $30,400,000, and the increase is subject to the same terms and conditions.

[Note: Authorizing legislation is required.]

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS (AIRPORT AND AIRWAY TRUST FUND)

Investment Proposal

Program and Financing (in thousands of dollars)

69-8106-7-7-402	92	93	94
Program by activities:			
10.00 Total obligations (object class 41)	....	....	30,400
Financing:			
39.00 Budget Authority	....	....	30,400
Budget authority:			
Current:			
40.00 Appropriation	....	....	15,200
40.49 Portion applied to liquidate contract authority	....	....	-15,200
43.00 Appropriation (Total)	....	....	......
Permanent:			
69.10 Contract authority	....	....	30,400
Relation of obligations to outlays:			
71.00 Total Obligations	....	....	30,400
Obligated balance, end of year:			
74.40 Appropriation	....	....	- 9,728
74.49 Contract authority	....	....	-15,200
90.00 Outlays	....	....	5,472

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Grants-in-Aid for Airports
(Liquidation of Contract Authority)
(Airport and Airway Trust Fund)

INVESTMENT PROPOSAL

Program and Performance

The proposed investment funding will support airport capacity development, safety and security needs.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS (AIRPORT AND AIRWAY TRUST FUND)

Status of Unfunded Contract Authority (in thousands of dollars)

69-8106-0-7-402	92	93	94
Unfunded balance, start of year	3,386,363	3,666,363	3,466,363
Contract Authority	1,900,000	2,050,000	1,848,600
Contract Authority (Investment)......	....	....	30,400
Appropriation to liquidate contract authority	-1,620,000	-2,000,000	-2,184,800
Appropriation to liquidate contract authority (Stimulus).............	....	-250,000	....
Appropriation to liquidate contract authority (Investment)	....	....	-15,200
Unfunded balance, end of year	3,666,363	3,466,363	3,145,363

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS (AIRPORT AND AIRWAY TRUST FUND)

Summary of Budget Authority and Outlays
(in thousands of dollars)

	92	93	94
Enacted/requested:			
Budget Authority	1,900,000	2,050,000	1,848,600
Outlays	1,672,126	2,071,800	1,783,880
Stimulus and other supplemental proposals:			
Budget Authority	......	......	......
Outlays	......	34,000	106,000
Investment proposal:			
Budget Authority	......	......	30,400
Outlays	......	......	5,472
Total:			
Budget Authority	1,900,000	2,050,000	1,879,000
Outlays	1,672,126	2,105,800	1,895,352

GRANTS-IN-AID FOR AIRPORTS

An obligation limitation of $1,848.6 million is requested for the airport grant program in FY 1994 for planning and development of the nations airports, and $30.4 million for infrastructure investment, for a total obligational limitation of $1,879.0 million being requested for FY 1994.

Major Objectives:

- Provide grants which are needed to meet airport safety and security regulations or necessary to enhance airport safety and security.
- Provide assistance for high priority projects that meet critical, new, and existing capacity needs of the airport system.
- Fund high priority planning requests that will contribute to airport safety, security, or capacity.
- Fund high priority grant requests for reliever airports, noise compatibility projects, and other projects to meet national goals and objectives.

The request of $1,879 million reflects the continued demand for capacity as well as other important projects. The Federal objective for airport improvements is to enhance the national system through increasing safety and security, reducing system delays, and providing new capacity to meet anticipated demands. Factors that are considered include national priorities, cost-effectiveness, and local initiatives.

Federal Role:

Although Federal aid has long been available to assist communities in developing airports, development at the larger airports is funded primarily by airport fees, revenue bonds, state and local assistance, and private initiatives. Smaller airports generally rely more heavily on Federal grant funds. Federal funding has generally accounted for about 33 percent of all airport investments and is intended to be used as a supplement to funding from other sources. State and local authorities generally pay for terminals, parking structures, etc. The Federal government funds generally are used for the construction of runways, planning and development of the nations airports, and other improvements such as noise control, lighting, and weather equipment. Many of the larger airports have significant potential earnings that could be and are used toward their capital investments such as building hangars for the carriers.

Funding Priority:

Funding for safety and security projects required by regulation and for other safety related development (including reconstruction and bringing airports up to standard) receive highest priority. Capacity improvements also receive high priority. The most critical needs in this area are to alleviate current delays and to provide capacity improvements needed to meet traffic projections at the major hub airports. New airport development is supported where needed and feasible, with priority given to areas with high activity levels.

To help ensure that capacity needs are met, the discretionary portion of the program would be increased to more effectively target funds to those projects that increase capacity. In addition to the discretionary funds, primary airports may direct formula funds to capacity improvements. Noise planning and implementation of noise compatibility studies receive priority within a specific legislated minimum. Funds for master planning are provided for high activity locations that benefit from such a study, and airport system planning is funded in accordance with the legislated minimum.

Accomplishments:

1. General Overview:

The availability of grant funds to meet growing needs and increasing costs of airport development has helped the Nation to achieve a safe and efficient airport system. This system is essential to commerce and supports the national defense.

In addition to Federal grants through the AIP, improvements to the system are also financed by other sources such as airport revenues, State and local aid, and airline improvements in facilities. Beginning in FY 1992, some airports had an additional source of funding with the passenger facility charge (PFC). As of mid-March 1993, 85 airports were approved to collect PFC's totalling almost $6 billion. Funding from all these sources has resulted in an airport system that provides a high level of service in the busiest air commerce system in the world.

GRANTS-IN-AID FOR AIRPORTS

2. FY 1992 Planning and Development Activity:

In FY 1992, AIP gross obligations totalled $1,956.4 million of which $1,765.0 million was for 1,507 new grant agreements and $191.4 million for increases in existing grant agreements. The new grants included 664 for a total of $1,219.7 million for primary airports, 75 for $56.4 million for other commercial service airports, 209 for $165.0 million for reliever airports, 489 for $252.1 million for general aviation airports, 67 for $11.3 million for integrated airport system planning, and $60.5 million for 3 State Block Grants.

Included in these grant agreements (1,507 for $1,765.0 million) was $208.8 million for 80 grants to achieve noise compatibility. This amount included $129.6 million for the purchase of noise-impacted land adjacent to airports, $71.0 million for soundproofing residences and schools, and $8.2 million for other efforts to reduce noise.

3. Fund Distribution by Work Increments:

The following shows the distribution of funds by type of work. This indicates that 54 percent ($6,789.2 million) for FY 1982-1992 funds have been directed to landing area construction. Land for both development and noise protection has received the next greatest share and accounts for 15 percent ($1,908.8 million). This table also shows that 45 percent of the funds were discretionary. This includes funds to meet the reliever, commercial service (non-primary), noise, and system planning legislative minimums as well as "pure" discretionary.

The following tables represent the type of work accomplished with AIP funds between FY 1982 and FY 1992 and the distribution of funds by airport type during the same time period; an AIP split between formula and discretionary grants for FY 1992-FY 1994; and a summary of estimated outlay and liquidating cash levels.

GRANTS–IN–AID FOR AIRPORTS

AIRPORT IMPROVEMENT PROGRAM
Federal Funds Allocated by Work Increment
FY 1982 – FY 1992
($ Obligations in Millions)

			Discretionary Funds	Formula Funds	Total Funds
1.	Planning		$ 166.8	$ 82.3	$ 249.1
2.	Safety and Security (Required by Reg.)		315.2	389.8	705.0
3.	Landing Area Construction (Includes Noise Work)				
	Runways		1,364.0	1,469.6	2,833.6
	Taxiways		920.7	1,228.2	2,148.9
	Aprons		735.8	1,070.8	1,806.6
		Subtotal	3,020.5	3,768.6	6,789.1
4.	Noise Control (Excluding Landing Area)				
	Land		581.8	297.9	879.7
	Other		312.4	110.9	423.3
		Subtotal	894.2	408.8	1,303.0
5.	Lighting, Naviaids, Weather Equipment		285.7	418.0	703.7
6.	Building				
	Terminal		10.0	479.7	489.7
			49.2	108.4	157.6
		Subtotal	59.2	588.1	647.3
7.	Land (Other Than Noise)		576.7	452.5	1,029.2
8.	Roadways		139.7	569.7	709.4
9.	Miscellaneous		140.0	192.7	332.7
10.	State Block Grants		106.2	42.9	149.1
		TOTAL	$ 5,704.2	$ 6,913.4	$ 12,617.6

Airport Improvement Program
Federal Funds Allocated by Airport Type
FY 1982 – FY 1992
($ in Millions)

Type of Airport	Number of Grants	Obligations Federal Funds	Percent of Funds
Primary	4,774	$8,532.6	67.6
Other Commercial Service	1,197	582.3	4.6
Reliever	1,657	1,410.8	11.2
General Aviation	4,579	1,863.8	14.8
System Planning	577	79.0	0.6
State Block Grants	9	149.1	1.2
TOTAL	12,793	$12,617.6	100.0

LOI COMMITMENTS BY FISCAL YEAR
($ In Thousands)

PRIMARY AIRPORTS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Nashville (BNA)	9,000	7,000	0	0	0	0	0	0	0	0	0	0	0	16,000
Formula	4,160	4,000	0	0	0	0	0	0	0	0	0	0	0	8,160
Discretionary	4,840	3,000	0	0	0	0	0	0	0	0	0	0	0	7,840
Gtr Cincinn (CVG)	13,950	14,050	19,200	17,300	10,000	7,000	4,000	3,000	0	0	0	0	0	88,500
Formula	5,170	3,050	3,200	3,300	0	0	0	0	0	0	0	0	0	14,720
Discretionary	8,780	11,000	16,000	14,000	10,000	7,000	4,000	3,000	0	0	0	0	0	73,780
Austin (New)	0	18,500	13,500	10,000	10,000	10,000	5,000	5,000						87,000
Formula	0	3,500	3,500	0	0	0	0	0	0	0	0	0	0	7,000
Discretionary	0	15,000	10,000	10,000	10,000	10,000	5,000	5,000	15,000	0	0	0	0	80,000
Orlando Intl (MCO)	9,025	9,025	0	0	0	0	0	0	0	0	0	0	0	18,050
Formula	7,111	6,600	0	0	0	0	0	0	0	0	0	0	0	13,711
Discretionary	1,914	2,425	0	0	0	0	0	0	0	0	0	0	0	4,339
Dallas/Ft Worth (DFW)	12,500	12,500	12,500	12,500	12,500	12,500	12,500	0	0	0	0	0	0	87,500
Formula	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discretionary	12,500	12,500	12,500	12,500	12,500	12,500	12,500	0	0	0	0	0	0	87,500
Las Vegas Intl (LAS)	4,000	4,000	4,500	0	0	0	0	0	0	0	0	0	0	12,500
Formula	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discretionary	4,000	4,000	4,500	0	0	0	0	0	0	0	0	0	0	12,500
Kansas City Intl ((MCI)	2,799	2,000	0	0	0	0	0	0	0	0	0	0	0	4,799
Formula	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discretionary	2,799	2,000	0	0	0	0	0	0	0	0	0	0	0	4,799
New Orleans Intl (MSY)	13,600	11,800	11,800	11,800	11,800	8,646	0	0	0	0	0	0	0	69,446
Formula	3,697	1,800	1,800	1,800	1,800	1,800	0	0	0	0	0	0	0	12,697
Discretionary	9,903	10,000	10,000	10,000	10,000	6,846	0	0	0	0	0	0	0	56,749
Buffalo Intl (BUF)	1,102	12,515	9,559	9,559	0	0	0	0	0	0	0	0	0	32,734
Formula	869	4,231	1,275	1,275	0	0	0	0	0	0	0	0	0	7,650
Discretionary	233	8,284	8,284	8,284	0	0	0	0	0	0	0	0	0	25,084
Denver Intl (DVX)	37,882	46,899	46,186	41,186	41,186	41,186	37,119	0	0	0	0	0	0	291,646
Formula	5,882	14,899	15,186	16,186	16,186	16,186	14,244	0	0	0	0	0	0	98,771
Discretionary	32,000	32,000	31,000	25,000	25,000	25,000	22,875	0	0	0	0	0	0	192,875

LOI COMMITMENTS BY FISCAL YEAR
($ In Thousands)

PRIMARY AIRPORTS (cont'd)

		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Gtr Ptsbrgh Int	(PIT)	7,000	7,000	5,000	0	0	0	0	0	0	0	0	0	0	19,000
Formula		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discretionary		7,000	7,000	5,000	0	0	0	0	0	0	0	0	0	0	19,000
Detroit Metro	(DTW)	14,352	15,093	15,300	15,500	15,750	18,000	18,250	6,500	6,750	7,000	7,250	7,500	5,055	152,299
Formula		4,352	5,093	5,300	5,500	5,750	6,000	6,250	6,500	6,750	7,000	7,250	7,500	5,055	78,299
Discretionary		10,000	10,000	10,000	10,000	10,000	12,000	12,000	0	0	0	0	0	0	74,000
Louisville	(SDF)	15,300	15,500	15,700	15,900	16,100	16,300	16,635	0	0	0	0	0	0	111,435
Formula		5,797	5,500	5,700	5,900	6,100	6,300	6,635	0	0	0	0	0	0	41,932
Discretionary		9,503	10,000	10,000	10,000	10,000	10,000	10,000	0	0	0	0	0	0	69,503
Toledo	(TOL)	2,090	3,040	0	0	0	0	0	0	0	0	0	0	0	5,130
Formula		1,244	2,187	0	0	0	0	0	0	0	0	0	0	0	3,431
Discretionary		846	853	0	0	0	0	0	0	0	0	0	0	0	1,699
Washington Dull	(IAD)	5,600	5,100	3,800	1,500	0	0	0	0	0	0	0	0	0	16,000
Formula		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discretionary		5,600	5,100	3,800	1,500	0	0	0	0	0	0	0	0	0	16,000
Washington Nat'	(DCA)	13,600	16,400	25,000	23,600	17,900	6,000	0	0	0	0	0	0	0	102,500
Formula		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discretionary		13,600	16,400	25,000	23,600	17,900	6,000	0	0	0	0	0	0	0	102,500
Birmingham	(BHM)	5,786	5,786	5,786	0	0	0	0	0	0	0	0	0	0	17,358
Formula		2,164	2,000	2,000	0	0	0	0	0	0	0	0	0	0	6,164
Discretionary		3,622	3,786	3,786	0	0	0	0	0	0	0	0	0	0	11,194
Savannah Int'l	(SAV)	3,639	3,782	2,000	2,000	2,000	1,965	0	0	0	0	0	0	0	15,386
Formula		1,639	1,782	0	0	0	0	0	0	0	0	0	0	0	3,421
Discretionary		2,000	2,000	2,000	2,000	2,000	1,965	0	0	0	0	0	0	0	11,965

LOI COMMITMENTS BY FISCAL YEAR
($ In Thousands)

PRIMARY AIRPORTS (cont'd)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Jacksonville Int'l (JAX)	4,900	4,900	4,900	4,900	0	0	0	0	0	0	0	0	0	19,600
Formula	2,437	2,400	2,400	2,400	0	0	0	0	0	0	0	0	0	9,637
Discretionary	2,463	2,500	2,500	2,500	0	0	0	0	0	0	0	0	0	9,963
Raleigh-Durham (RDU)	4,606	4,458	549	0	0	0	0	0	0	0	0	0	0	9,613
Formula	4,606	4,458	549	0	0	0	0	0	0	0	0	0	0	9,613
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reno Cannon Int (RNO)	6,455	6,546	6,500	6,500	6,500	6,500	6,500	8,500	8,500	8,500	0	0	0	71,000
Formula	2,455	2,546	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	0	0	0	25,000
Discretionary	4,000	4,000	4,000	4,000	4,000	4,000	4,000	6,000	6,000	6,000	0	0	0	46,000
Elmira/Corning R (ELM)	684	684	168	0	0	0	0	0	0	0	0	0	0	1,536
Formula	684	684	168	0	0	0	0	0	0	0	0	0	0	1,536
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Theo. F Green St (PVD)	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	8,000	0	0	0	0	60,000
Formula	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,400	0	0	0	0	20,000
Discretionary	4,300	4,300	4,300	4,300	4,300	4,300	4,300	4,300	5,600	0	0	0	0	40,000
Datona Beach R (DAB)	0	2,000	2,000	1,700	1,700	0	0	0	0	0	0	0	0	7,400
Formula	0	1,000	1,000	0	0	0	0	0	0	0	0	0	0	2,000
Discretionary	0	1,000	1,000	1,700	1,700	0	0	0	0	0	0	0	0	5,400
Indianapolis Int'l (IND)	0	7,341	7,475	11,114	11,239	0	0	0	0	0	0	0	0	37,168
Formula	0	3,341	3,475	3,614	3,758	0	0	0	0	0	0	0	0	14,187
Discretionary	0	4,000	4,000	7,500	7,481	0	0	0	0	0	0	0	0	22,981
Golden Triangle (GTR)	0	400	400	400	400	400	400	282	0	0	0	0	0	2,682
Formula	0	400	400	400	400	400	400	282	0	0	0	0	0	2,682
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Florence Region (FLO)	0	400	235	0	0	0	0	0	0	0	0	0	0	635
Formula	0	400	235	0	0	0	0	0	0	0	0	0	0	635
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Primary	194,371	243,218	218,557	191,959	163,575	134,998	106,904	29,782	38,250	15,500	7,250	7,500	5,055	1,356,919
Formula	54,467	72,070	50,887	45,075	38,695	35,386	32,229	11,482	11,650	9,500	7,250	7,500	5,055	381,246
Discretionary	139,904	171,148	167,670	146,884	124,881	99,611	74,675	18,300	26,600	6,000	0	0	0	975,672

LOI COMMITMENTS BY FISCAL YEAR
($ In Thousands)

RELIEVER AIRPORTS
(All Discretionary Funds)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Scott AFB (BLV)	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	0	0	0	140,000
DuPage (DPA)	8,020	0	0	0	0	0	0	0	0	0	0	0	0	8,020
Peachtree City-F (FFC)	445	0	0	0	0	0	0	0	0	0	0	0	0	445
Subtotal Reliever	22,464	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	0	0	0	148,464
GRAND TOTAL	216,835	257,218	232,557	205,959	177,575	148,998	120,904	43,782	52,250	29,500	7,250	7,500	5,055	1,505,383

AIRPORT IMPROVEMENT PROGRAM
PROGRAM LEVEL SUMMARY ($ MILLIONS)

	FY 1992	FY 1993	FY 1994	Investment FY 1994	TOTAL FY 1994
FORMULA GRANTS					
Primary Airports	621.3	573.8	509.8	0.0	509.8
Cargo Service Airports	50.0	63.0	64.7	1.0	65.7
Alaska (Sec 507(b)(5))	10.5	10.5	10.6	0.0	10.6
States (General Aviation)	228.0	216.0	221.8	3.6	225.4
Subtotal Formula Grants	909.8	863.3	806.9	4.6	811.5
DISCRETIONARY GRANTS					
Noise Compatibility	190.0	225.0	231.1	3.8	234.9
Reliever Airports	190.0	180.0	184.9	3.0	187.9
Small Commercial Airports	47.5	45.0	46.2	0.8	47.0
System Planning	9.5	9.0	9.2	0.2	9.4
Small Airports	0.0	49.0	105.0	0.0	105.0
Military Airports	28.5	40.5	46.2	0.8	47.0
Capacity/Safety/Sec/Noise	308.1	224.9	239.3	12.9	252.2
Carryover (from Formula Grants)	113.9	88.3	100.0	0.0	100.0
Other Discretionary 1/	102.7	75.0	79.8	4.3	84.1
Subtotal Discretionary Grants	990.2	936.7	1,041.7	25.8	1,067.5
TOTAL (OBLIGATION LIMITATION)	1,900.0	1,800.0	1,848.6	30.4	1,879.0

1/ FY 1993 excludes $250 million of other discretionary proposed in Economic Stimulus Package.

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)

For necessary expenses, not otherwise provided for, for acquisition, establishment, and improvement by contract or purchase, and hire of air navigation and experimental facilities and equipment as authorized by the Federal Aviation Act of 1958, as amended (49 U.S.C. App. 1301 et seq.), including initial acquisition of necessary sites by lease or grant; engineering and service testing including construction of test facilities and acquisition of necessary sites by lease or grant; and construction and furnishing of quarters and related accommodations of officers and employees of the Federal Aviation Administration stationed at remote localities where such accommodations are not available; and the purchase, lease or transfer of aircraft from funds available under this head; to be derived from the Airport and Airway Trust Fund, [$2,350,000,000] $2,417,282,000 of which [$2,159,000,000] $2,215,282,000 shall remain available until September 30, [1995] 1996, and of which [$191,000,000] $202,000,000 shall remain available until September 30, [1994] 1995: Provided, That there may be credited to this appropriation funds received from States, counties, municipalities, other public authorities, and private sources, for expenses incurred in the establishment and modernization of air navigation facilities: [Provided further, That with appropriations made for the Airway Science program, as authorized below in this section, the Federal Aviation Administration may hereafter enter into competitive grant agreements with institutions of higher education having airway science curricula, for the Federal share of the allowable direct costs of the following categories of items, to the extent that such items are in support of airway science curricula: (a) the construction, purchase, or lease with option to purchase, of buildings and associated facilities, and (b) instructional materials and equipment. Such funds are hereby authorized to be appropriated and may remain available until expended. The Federal Aviation Administration shall establish guidelines for determining the direct costs allowable under grants to be made pursuant to this section. The maximum Federal share of the allowable cost of any project assisted by such grants shall be 65 percent: Provided further, That such Federal share shall be considered as having taken effect on October 1, 1991.] (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Program and Financing (in thousands of dollars)

Identification code 69-8107-0-7-402		92 Actual	93 Est	94 Est
	Program by activities:			
	Direct program:			
00.01	Air traffic control centers....	948,638	189,669	106,259
00.01	Engineering, development test and evaluation..............	-	555,225	549,206
00.02	Airport traffic control towers.	473,810	496,981	320,597
00.02	Procurement and Modernization of ATC Facilities and Equipment..................	-	499,051	927,006
00.03	Flight service facilities......	66,159	45,622	26,082
00.03	Procurement and Modernization of Non-ATC Facilities and Equipment.....................	-	59,594	127,226
00.04	Air navigation facilities......	122,973	153,313	88,615
00.04	Mission Support................	-	104,595	208,696
00.05	Housing, Utilities, and miscellaneous facilities......	350,096	193,919	114,699
00.05	Personnel and Related Costs....	-	191,000	202,000
00.06	Aircraft and related equipment.	15,230	43,135	29,003
00.07	Development, test and evaluation facilities.........	16,475	16,031	10,611
00.08	Personnel compensation, benefits and travel...........	143,506	5,865	-
00.91	Total direct progam.........	2,136,887	2,554,000	2,710,000
01.01	Reimbursable program	53,746	115,000	118,105
10.00	Total obligations	2,190,633	2,669,000	2,828,105
	Financing:			
21.40	Unobligated balance available, start of year	-1,713,471	-1,980,858	-1,776,858

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Program and Financing (in thousands of dollars)

Identification code 69-8107-0-7-402	92 Actual	93 Est	94 Est
24.40 Unobligated balance available, end of year..................	1,980,858	1,776,858	1,484,140
25.00 Unobligated balance lapsing....	4,726	......	......
39.00 Budget Authority (gross).......	2,462,746	2,465,000	2,535,387

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Financing and Outlays (in thousands of dollars)

Identification code 69-8107-0-7-402		92 Actual	93 Est	94 Est
	Budget Authority:			
40.00	Appropriation	2,409,000	2,350,000	2,417,282
	Permanent:			
68.00	Spending authority from offsetting collections.......	53,746	115,000	118,105
Relation of obligations to outlays:				
71.00	Obligations incurred, net......	2,190,633	2,669,000	2,828,105
72.40	Obligated balance, start of year........................	2,112,932	2,362,223	2,956,723
74.40	Obligated balance, end of year	-2,362,223	-2,956,723	-3,549,647
77.00	Adjustments in expired accounts.....................	-3,070	......	......
87.00	Outlays (gross)...............	1,938,272	2,074,500	2,235,181
	Adjustments to budget authority and outlays: Deductions for offsetting collections:			
88.00	Federal Funds..................	-48,049	-102,810	-105,586
88.40	Non-Federal sources...........	-5,697	-12,190	-12,519
88.90	Total, offsetting collections..	-53,746	-115,000	-118,105
89.00	Budget authority (net).........	2,409,000	2,350,000	2,417,282
90.00	Outlays (net)..................	1,884,526	1,959,500	2,117,076

SUMMARY OF BUDGET AUTHORITY AND OUTLAYS
(in thousands of dollars)

	1992 actual	1993 est	1994 est
Enacted/requested			
Budget authority	2,409,000	2,350,000	2,417,282
Outlays	1,884,526	1,959,500	2,117,076
Investment proposal			
Budget authority	.....	.....	106,718
Outlays	.....	.....	21,344
Total			
Budget authority	2,409,000	2,350,000	2,524,000
Outlays	1,884,526	1,959,500	2,138,420

Note: Line 00.04 has an estimated contingent liability of $104 million (present value) associated with the FAA's long-term lease of facilities at the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma. This contingent liability will be funded through this account.

FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)

PROGRAM AND PERFORMANCE

The proposed funding sustains the current infrastructure and supports the FAA plan to modernize and improve the national airspace system. In particular, funds would provide for significant progress in developing the advanced automation system, designed to upgrade air traffic control technology and the voice switching and control system to modernize the system's outdated communications network. An additional $106,718,000 for FY 1994 is included in the separate investment budget schedules.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Object Classification (in thousands of dollars)

Identification code 69-8107-0-7-402		92 Actual	93 Est	94 Est
	Direct obligations:			
	Personnel compensation:			
11.1	Full-time permanent	77,646	115,110	118,331
11.3	Other than full-time permanent .	1,086	1,610	1,533
11.5	Other personnel compensation ...	4,978	7,380	6,389
11.8	Special personal services payments	1,061	1,573	1,532
11.9	Total personnel compensation ..	84,771	125,673	127,785
	Personnel benefits:			
12.1	Civilian	17,530	27,587	33,967
21.0	Travel and transportation of persons	25,851	33,459	36,748
22.0	Transportation of things	2,504	2,952	3,264
23.2	Rental payments to others	13,324	15,709	16,827
23.3	Communications, utilities, and other rent	3,959	4,668	5,023
24.0	Printing and reproduction	270	318	502
25.1	Consulting Services............	2	2	2
25.2	Other Services	1,110,692	1,308,489	1,387,293
26.0	Supplies and materials	34,452	40,619	43,198
31.0	Equipment	692,604	816,580	866,468
32.0	Lands and Structures	144,302	170,132	180,577
41.0	Grants, subsidies, and contributions.................	6,582	7,760	8,288
42.0	Insurance claims and indemnities	44	52	58
99.0	Subtotal, direct obligations ..	2,136,887	2,554,000	2,710,000
99.0	Reimbursable obligations	53,746	115,000	118,105
99.9	Total obligations	2,190,633	2,669,000	2,828,105

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Personnel Summary

Identification code 69-8107-0-7-402	92 Actual	93 Est	94 Est
Direct:			
Total compensable workyears:			
Full-time equivalent employment	1,733	2,200	2,300
Full-time equivalent of overtime and holiday hours	100	100	100
Reimbursable:			
Total compensable workyears:			
Full-time equivalent employment	51	55	55
Full-time equivalent of overtime and holiday hours	4	4	4

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)

INVESTMENT PROPOSAL

In addition to amounts otherwise available under this heading, and subject to the same terms and conditions, for necessary expenses, not otherwise provided for, for acquisition, establishment, and improvement by contract or purchase, and hire of air navigation and experimental facilities and equipment as authorized by the Federal Aviation Act of 1958, as amended (49 U.S.C. App. 1301 et seq); $106,718,000 to be derived from the Airport and Airway Trust Fund and so remain available until September 30, 1996.

Program and Financing (in thousands of dollars)

Identification code 69-8107-0-7-7-402	92 Actual	93 Est	94 Est
Program by activities:			
Direct program:			
00.01 Engineering, development test and evaluation	-	-	18,600
00.02 Procurement and Modernization of ATC Facilities and Equipment	-	-	45,431
10.00 Total obligations (object class 25.2)	-	-	64,031
Financing:			
24.40 Unobligated balance available, end of year	-	-	42,687
Budget Authority:			
40.00 Appropriation	-	-	106,718
Relation of obligations to outlays:			
71.00 Obligations incurred, net	-	-	64,031
74.40 Obligated balance, end of year	-	-	-42,687
90.00 Outlays	-	-	21,344

The proposed investment funding supports FAA's multiyear air traffic control modernization program. In particular, funds would provide for progress in implementing the advanced automation system, the voice switching and control system, and weather radar systems.

FY 1994 PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

	Base	Investment	Total
Engineering, Development, Test, and Evaluation	574,953,000	$31,000,000	$ 605,953,000
Procurement and Modernization of Air Traffic Control Facilities and Equipment	1,170,703,000	75,718,000	1,246,421,000
Procurement and Modernization of Non-Air Traffic Control Facilities and Equipment	187,795,000	---	187,795,000
Facilities and Equipment Mission Support	281,831,000	---	281,831,000
Personnel and Related Expenses	202,000,000	---	202,000,000
Total FY 1994 Estimate	$2,417,282,000	$106,718,000	$2,524,000,000

GENERAL JUSTIFICATION

The funding request for fiscal year 1994 is in accordance with the Federal Aviation Administration's comprehensive plan for modernizing and improving air traffic control and airway facilities services. The Facilities and Equipment (F&E) budget request contains projects from the agency's Capital Investment Plan (CIP) that are required to update and maintain America's air traffic control system. The request addresses the compelling problems of how best to accommodate strong demands for aviation services, constrain costs, modernize automation and communication technology and systems, and deal with aging facilities. Particular emphasis is placed on en route and terminal air traffic control, flight service stations and weather services, communications, navaid inspection by aircraft, and auxiliary services.

The FY 1994 F&E request supports the FAA's effort to expand the capacity of the airport and air traffic systems to provide more direct routings while accommodating the rate, sequence, and speed at which aircraft move through the system. At the same time, the F&E request addresses the fact that many of the FAA facilities are rapidly aging and that maintenance and operations costs are rising. The conceptual basis underlying both the CIP and the F&E request is that safety, capacity, productivity, and economy will be chiefly realized through higher levels of capital investment in automation, the consolidation of major facilities, and the application of rapidly changing and lower cost technologies in telecommunications. The agency's primary goal is to provide for the safe and efficient use of the nation's airspace, while minimizing constraints on its use.

FY 1994 PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

The following sections will address the relationship of the FY 1994 F&E budget request to the aviation industry, the economy, air traffic demand, benefits of F&E investment, and national priorities. Specifically, section one will address the F&E investment and:

- Aviation technology;
- Aviation activity levels and demand,
- The magnitude of the air traffic control mission,
- The agency's goals and their link to users and industry benefits

Sections two, three, and four of the general justification will discuss the impact of the agency's capital investment on the aviation industry and the impact of aviation on the U.S. economy, demonstrate the relationship between the F&E budget and national priorities, and examine the impact to the public and the aviation industry of delaying the F&E modernization effort.

SECTION 1: OVERVIEW

The FAA's equipment and technology sharpens our worldwide competitive edge in aviation and aviation technology. To maintain that advantage, and to encourage innovation and creativity, additional continuing investments are necessary in facilities and equipment (F&E). The FAA is leading the international move toward using satellite technology to reduce the dependence on ground based navigation, communication, and surveillance systems. Technological opportunities for U.S. manufacturers will be created by a growing worldwide demand for aeronautical products and systems, including: systems to support the integration of the ground air traffic management (ATM) system, communications and navigation using satellites and data link, aircraft automatic dependent surveillance, weather forecasting, and avionics equipment.

In addition, investments in air traffic control modernization will lessen the operating costs of the airlines. For example, there are several F&E projects that will reduce delays in terminal areas and provide more user-preferred flight altitudes and routes. These projects are expected to provide substantial fuel savings and crew cost savings directly to the airlines. In the oceanic area, projects such as oceanic automation, automatic dependent surveillance and satellite communications are expected to produce significant operating cost savings to carriers from reduced separation standards and more fuel efficient altitudes and routes In terminal areas, projects like terminal air traffic control automation (TATCA) and precision runway monitors are expected to increase arrival capacities and thereby reduce delays. F&E projects such as the above can have a significant impact on restoring economic health and productivity to the aviation industry.

Although U.S. air carriers have suffered unprecedented financial losses in recent years, aviation activity is expected to continue to grow at significant rates and forecasts project the increasing contribution of international aviation activity. While domestic passenger enplanements and miles flown are forecasted to increase by 52 and 56 percent, respectively, between 1993 and 2004, international passenger enplanements and miles flown are forecasted to nearly double over the same time period. Total hours flown by U.S. commercial carriers is forecasted to increase from an average of nearly 30,000 hours a day to over 40,000 hours a day over the same period By 2004, over 800 million passengers will enplane each year, about 2 million passengers a day. This increase in aviation activity provides the U.S. with an opportunity to enhance its technological leadership and to create new jobs

The U.S. supervised airspace, as shown in Figure 1-1, is 14 percent of the earth's surface, encompassing not only the land mass of the U.S. (2.3%), but also significant portions of the Atlantic and Pacific Oceans (11.7%). To safely and efficiently provide aviation services in this vast area, the FAA operates and maintains a network of more than 24,000 facilities including navigation, landing and communications equipment. The FAA also provides staff at more than 600 air traffic control facilities including air route traffic control centers (ARTCC), terminal radar approach control centers (TRACON), air traffic control towers (ATCT), and flight service stations (FSS). These facilities together are the primary components of the National Airspace System (NAS). Through the projects funded by the F&E budget, the FAA modernizes and upgrades the NAS, to ensure that the mission is achieved and that aviation continues to provide the platform for economic growth.

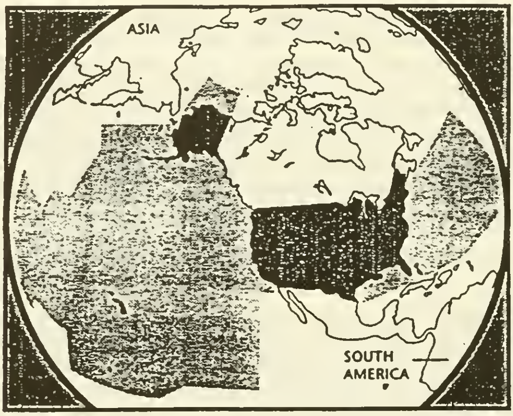

Figure 1-1 U.S. Supervised Airspace is 14 percent of the Earth's Surface

The following table links the goals and features discussed above with both user and industry benefits.

GOALS	FEATURES	USER BENEFITS	INDUSTRY BENEFITS
Improve Safety	Ability to safely handle increased traffic demand	Reduce injuries, fatalities	Opportunity to develop equipment that improves weather prediction, reduces human errors, and lessons potential for runway incursions
Increase Capacity and Efficiency	Ability to handle increased traffic demand	Reduce operating costs, flight delays, accommodate requested routes	Opportunity to develop equipment that improves traffic management control and information including ground, aircraft and satellite based equipment
Improve Operations	Ability to lead in the development of a global air transportation system	Provide access to world markets	Opportunity to increase U.S. exports of air traffic systems, equipment and services

Table 1-2 Industry and User Benefits of Pursuing FAA Goals

Specific goals to improve safety, increase capacity and efficiency, and improve operations are listed below.

- Reduce civil aviation fatality rate by at least 10 percent by 2000;
- Reduce the number of accidents attributable to weather by 20 percent by 2000;
- Reduce weather-related delay costs by 15 percent by 2005;
- Ensure that system capacity will meet demand;
- Provide more user preferred routes and altitudes to minimize aircraft operating costs;
- Reduce runway incursions by 80 percent by 2005;
- Accommodate a projected two-fold increase in oceanic air traffic demand by 2010, with more fuel-efficient flight profiles.

SECTION 2: IMPORTANCE OF AVIATION TO THE U.S. ECONOMY

The role of aviation in contributing to the health of the U.S. economy is well documented. The FAA's F&E program enhances the infrastructure required for aviation growth. F&E spending also creates high skill professional and technical jobs and increases economic activity. This section demonstrates these relationships and highlights the importance of aviation to the continued growth of the economy.[1]

F&E expenditures of $1.88 billion in FY 1992 supported infrastructure improvements in air navigation, flight service, centers and towers, and related support items. As shown in Figure 2-1, these expenditures generated almost 68,000 jobs. Of these jobs, 20,700 are considered "direct" jobs, which include FAA employees who develop and manage the F&E program , contractor engineering support, and the employees hired by equipment manufacturers and construction firms throughout the country to design, manufacture, build, and install the purchased equipment, systems, and facilities. About 47,000 additional jobs were created by these direct employees spending their paychecks in their local communities. Including these "multiplier effects", the $1.88 billion in F&E expenditures produced a net economic impact of $5.73 billion.

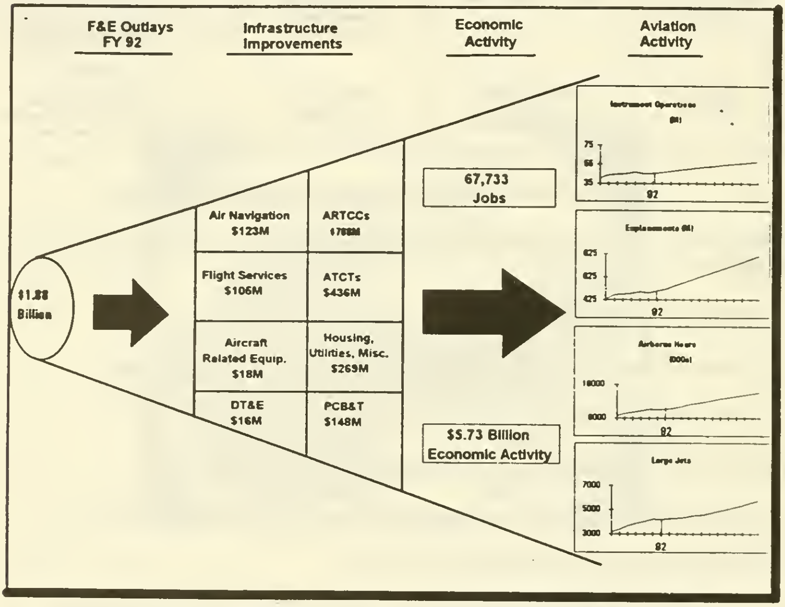

Figure 2-1 F&E Spending Supports Aviation Infrastructure

Primarily, however, these F&E expenditures provide for improvements to the air traffic control infrastructure that supports the forecasted growth in aviation activity. As shown by the four charts on the right of Figure 2-1, aviation activity is expected to increase significantly from 1992 through the year 2004. For example, instrument operations will increase from about 45.6 million in 1992 to 58 million in 2004, an increase of almost 30 percent. Enplanements will increase over those 12 years from approximately 504 million to 808 million, an increase of 60 percent Airborne hours and numbers of large jets, as shown in the bottom two charts, will increase 48 and 37 percent respectively. (For additional forecast information, please see the National Aviation System Activity forecast which follows the general justification.)

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[1] The data provided in Section 2 is excerpted from a study entitled "The Economic Impact of Civil Aviation on the U.S. Economy", March 1993, that was prepared for FAA by Wilbur Smith Associates.

Figure 2-2 shows the total impact of civil aviation activity on the U.S. economy. This assessment is based on 1991 information, and includes "multiplier effects" based on the Department of Commerce Input/Output Model. Commercial aviation, including airlines, air cargo, air commuter, passenger expenditures, commercial aircraft manufacturing, and commercial service airports, generated over 93 percent of aviation's total economic impact. The remaining 6.5 percent is created by general aviation, which includes air taxi, corporate and private aviation, helicopters, general aviation airports, flight schools, fixed base operators, passenger services, and general aviation manufacturing. Although general aviation seems small in comparison to commercial aviation, it is still a major industry that generates over 500,000 jobs and more than $45 billion in economic activity.

Including multiplier effects, in 1991, civil aviation provided 8.47 million jobs with total earnings of $206 billion, and a total annual economic activity of almost $700 billion. This economic activity involves not only the transportation industry, but also 38 additional standard industrial classification (SIC) industries, including lodging, food services, real estate, and construction. The printer who prints the airline schedule and the steel worker whose steel is used in the aircraft and in the airport rental car are also affected by aviation. Virtually every industry benefits from aviation provision and/or aviation use.

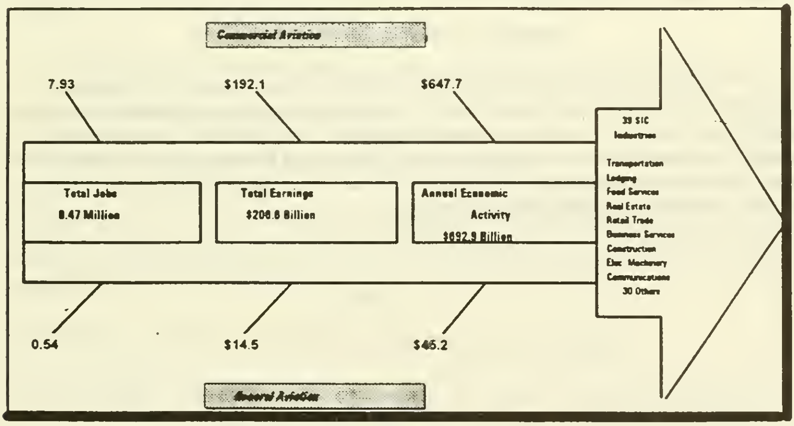

Figure 2-2 Aviation Has Broad Impacts

The aviation-related industries are comprised of several sectors These are shown in Figure 2-3, which reflects the portion of jobs attributable to each. Almost 60 percent of the jobs provide goods and services to air passengers, including for example, hotel, restaurant, car rental employees. Almost 300,000 jobs are created by the travel industry, which is an industry that depends heavily for its existence on air travel. The airlines and general aviation provide almost 1.7 million jobs while airports and facilities provide almost 600,000 jobs. The aircraft and parts manufacturing sector creates almost 900,000 jobs. An additional 60,000 jobs are created in other services, including medical examinations, training, and pilot certification.

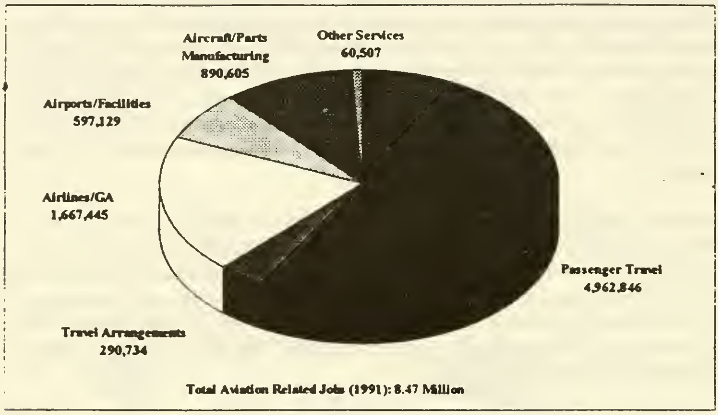

Figure 2-3 Aviation Means Jobs

Figure 2-4 shows the portion of economic activity attributed to each sector of the aviation industry. More than half of the economic activity is attributed to passenger expenditures on, for example, hotels, rental cars, restaurants, and entertainment . The airlines and general aviation produce 22 percent of aviation's economic activity, while aircraft manufacturing accounts for 17 percent. FAA's F&E expenditures are counted within the airports and facilities sector, which generates 7 percent of aviation's economic activity.

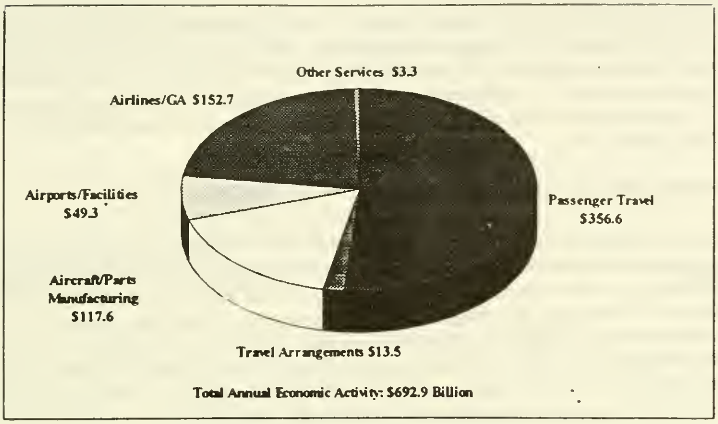

Figure 2-4 Aviation Generates Economic Activity

Overall, civil aviation is a major contributor to national output, totaling almost $700 billion in annual economic activity, and contributing 6 percent to the gross national product in 1991. Moreover, aviation's role is expected to continue growing throughout the 1990's and into the 21st century. Estimates in constant 1991 dollars of the total aviation impacts in the year 2000 may approach:

- $868.2 billion in economic activity, an increase of 25 percent over 1991 levels,
- $226.2 billion in earnings, and generate,
- 9.3 million jobs, a 10 percent increase over 1991 levels.

However, all of the current aviation-related economic activity, and its anticipated growth into the 21st century, is heavily dependent on the continued safe operation and enhancement of the nation's air traffic control system. Continued investment in FAA's F&E program is necessary to support this vital part of the nation's economy.

SECTION 3: F&E RELATIONSHIP TO NATIONAL PRIORITIES

The F&E projects contribute to achieving five national priorities: Economic Health and Productivity; Safety and Security; Technological Leadership and Competitiveness, Energy Conservation; and Environmental Protection. New controller automation and navigation and landing aids will help to increase NAS capacity and decrease delays enabling the aviation system to keep pace with and foster economic growth and reduce fuel consumption. Reduced fuel consumption contributes to both energy conservation and environmental protection. Improved weather information will increase aviation safety. Facility replacement and modernization will ready facilities to support new equipment and growth, while making those changes necessary to ensure a safe and environmentally sound work place. FAA's NAS modernization program will help to ensure that the U.S. maintains its position as the world leader in aviation technology. Several examples of how F&E projects contribute to achieving each of these priorities are described in detail below:

Economic Health and Productivity

When fully implemented, current F&E projects will help the airlines to realize fuel and other direct operating cost savings via shorter flight routes and decreased delay. For planned projects from 1992 on, air carriers are estimated to save over 35 billion gallons of fuel and over 30 million aircraft hours. These direct operating cost savings, equate to over $62 billion dollars through 2025, or on average nearly $2 billion annually -- nearly enough to cover the airlines total losses for 1992. Modern automation systems are needed to safely implement new air traffic control procedures that reduce fuel consumption and other airline operating costs. These cost savings are of vital importance to restoring the health of the domestic airline industry.

Staggering losses in the airline industry have forced cancellation of new aircraft orders. These cancellations have had a severe effect on our domestic aircraft manufacturing industry. The economic health of this industry is important to both the U.S. domestic economy and the U.S. balance of payments. Merchandise exports of civilian aircraft, engines, and parts totaled more than 8 percent of total U.S. exports in 1991. F&E projects will help to reduce airline operating costs, thereby helping the airlines return to profitable status and, in turn, aiding in the recovery of the aircraft manufacturing industry.

The air transportation system is vital to the U.S. economy in terms of transporting tourists, business travelers, and cargo. NAS system capacity growth must keep pace with economic growth to meet commerce travel needs. Air carrier aircraft operations are forecast to increase at an annual rate of 2.2 percent during the 12 year period 1992-2004, and total instrument and instrument flight rule (IFR) aircraft handled are both forecast to increase at a 2 percent average annual growth rate over the same time period. Of the top 100 airports in the United States, 23 exceeded 20,000 hours of flight delays in 1990. If capacity is not increased to meet increased traffic, the number of airports exceeding 20,000 hours of delay is projected to increase to 40 by the year 2000. F&E investments in new automation, surveillance, landing, navigation aids, and associated facility expansions and modernization will increase airport capacity with existing runway resources and improve en route airspace routings.

In addition, the FAA must invest in the necessary infrastructure to support local airport improvement projects. For example, the F&E program will have provided over $170 million and $165 million for air traffic control, surveillance, navigation and landing equipment requirements for the New Denver Airport and the Dallas Ft. Worth Metroplex respectively. Currently, 18 of the 23 delay-problem airports are in the process of constructing or planning for the construction of new runways or extensions to existing runways. The F&E program provides the new navigation, landing, and lighting systems and FAA facility expansions needed to operate these new runways. The F&E program invests in the infrastructure improvements and new technologies to ensure that added demand for airspace and airport capacity is met efficiently.

Safety and Security

The U.S. air traffic control system is the safest in the world. F&E projects will ensure that growth in aviation demand is met without compromising safety. To improve on our safety record, new technologies have emerged that provide controllers and pilots with better information regarding, for example, weather phenomenon such as wind shear and microbursts. Currently planned F&E projects are expected to prevent the loss of over 4,500 lives and over 6,000 injuries through the year 2025.

The FAA must also invest to ensure the safety and security of its workforce. FAA facilities are aging, with many facilities between 20-40 years old. Investment is needed to ensure that these facilities meet Occupational Safety and Health Administration and Environmental Protection Agency regulations. A major expense is continued efforts of asbestos abatement. Of the 436 FAA Air Traffic Control Towers, Asbestos Inspection Reports have been completed for 169 towers. These reports found that 11.8 percent of those towers surveyed require immediate priority action to minimize the potential health and safety threat to FAA employees. An additional 17.2 percent of towers require high priority action. Federal regulations dictate that improvements to FAA facilities be made if these facilities are to remain operational.

Investments must also be made to replace those facilities for which air traffic growth can no longer be handled by the existing facilities. To maintain safety, new towers must be built when construction on airports, such as new terminals and hangars, causes restricted views in the tower

Technological Leadership and Competitiveness

The U.S. air traffic control system is the most technologically advanced and sophisticated in the world. Investment is needed to replace outdated portions of the system with modern technologies to ensure that our system continues to be the world's best The NAS must also utilize the latest navigation, communication, and landing systems, such as satellite systems, to ensure that our airlines obtain those cost-savings available with modern technology. In so doing, our airlines, aircraft manufacturers, and domestic systems manufacturers can be assured that they can compete in the international market and continue to lead the world in aviation.

In order to maintain our technological leadership in air traffic control while maintaing safety as system demand grows, the new communication and automation systems will be state of the art with an extremely high degree of availability. The Advanced Automation System (AAS) will provide automatic reconfiguration capabilities to better meet real-time user demand and permit increased granting of user preferred trajectories and altitudes. The new voice switch which supports AAS in the en route centers, called the Voice Switching and Control System (VSCS), will have an availability of seven 9's. In other words, the switch can only be inoperable for 3 seconds a year. Terminal Air Traffic Control Automation (TATCA) is cutting edge technology which uses detailed aircraft aerodynamic modeling married with artificial intelligence to model controller and pilot intent. This system will provide advisories directly to controllers to assist them in optimizing traffic flow management, and uses an architecture based on the latest workstation technologies. Aeronautical data-link will advance the state-of-the-art in air-to-ground communications through a seamless communications structure that is interoperable with satellite, Mode S, and VHF technologies.

Surveillance data rate and radar and display accuracy improvements will enable simultaneous parallel approaches under instrument weather conditions to runways spaced more closely together than is permitted today through the use of Precision Runway Monitors. This system includes the use of electronic scan technology to improve the radar update rate to once every 0.5 seconds compared to the 4.8 second update rate of conventional airport surveillance radars. This system lays the foundation for future implementation of triple and quadruple simultaneous approaches which will greatly increase an airport's capacity in the absence of infrastructure expansion.

State-of-the-art weather products will identify the timing and location of weather hazards with a high degree of precision, facilitating both delay savings and increased safety. The Aviation Weather Products Generator (AWPG) will provide controllers in the en route centers with 4-dimensional weather information (3 dimensional plus time), and enable better descriptions of both current state and forecasted weather conditions. In the terminal area, the Integrated Terminal Weather System (ITWS) will integrate multiple terminal weather products and provide a unified picture of real-time weather information for controllers. In addition, ITWS will automatically resolve potentially conflicting data from multiple weather information sources.

Energy Conservation

More fuel efficient routes, increased granting of user preferred trajectories and altitudes, increased system capacity, and decreased delays realized through the implementation of currently planned F&E projects are estimated to save the user community more than 36 billion gallons of aviation fuel through 2025. These savings will significantly contribute toward conserving our limited national resources, and will lessen U.S. dependence on foreign oil.

Environmental Protection

To ensure ATC service availability, the FAA maintains engine generators to generate power in the event of a power outage. Currently, the FAA maintains over 3000 underground tank sites primarily for petroleum fuels to power these engine generators. The 1984 Resource Conservation and Recovery Act, as well as more stringent State laws, regulate the leak detection and corrosion and overfill protection standards of these tanks. Under the Federal Facility Compliance Act, the Federal Government must comply with these regulations. F&E funding is required to bring tanks into compliance with these regulations, to continue to operate the tanks, and thereby, provide service during commercial power outages. These tank upgrades ensure that the quality and safety of the nation's water supply is not put at risk, by taking the necessary precautions to prevent fuel from contaminating ground water.

F&E funds are also needed to ensure that the FAA complies with all laws and regulations regarding hazardous materials to ensure that those materials used in air traffic control equipment and facilities are safely and properly disposed, and do not harm our environment.

As shown by the above examples, **F&E projects improve current services or provide new capabilities which will enable cost reductions for both users and the FAA.** The benefits from these investments contribute to achieving multiple national priorities. Examples of specific F&E project contributions to national priorities and attendant user benefits are presented in Table 3-1.

Project	Feature	Benefits	Principal National Priorities				
			Economic Productivity	Energy Conservation	Safety/ Security	Environmenta Protection	Technological Leadership
En Route Projects							
Advanced Automation System	•Improved system efficiency via increased user preferred trajectories and altitudes •Replaces obsolete automation equipment	•Reduce User Operating Costs •Reduce Flight Delays •Increased User Preferred Trajectories and Altitudes	●	●			●
Oceanic Automation System	•Decreased oceanic separation standards	•Reduce User Operating Costs •Reduce Flight Delays •Increased User Preferred Trajectories and Altitudes	●	●			
Terminal Projects							
New Denver Airport/DFW Metroplex	•Service forecasted air traffic growth in the Denver and Dallas-Ft. Worth areas.	•Reduce User Operating Costs •Reduce Flight Delays •Regional Economic Growth	●				
ATCT/TRACON Modernization/ Replacement	•Replace obsolete environmental equipment, aging facilities •Remove facility space constraints	•Provide space for growth •Modernize environmental systems •Remove Environmental Hazards	●		●		
Terminal Air Traffic Control Automation	•Provide terminal aircraft spacing automation	•Reduce User Operating Costs •Reduce Flight Delays •Increase efficiency of terminal aircraft operations	●	●			●
Airport Surface Detection Equipment/ Movement Area Safety System/Surface Traffic Automation	•Provide runway incursion indicators •Provide conflict alert for airport surface	•Increased runway departure capacity •Improved airport safety	●		●		

Table 3-1 Benefits of F&E Investments and Impact on National Priorities

FY 1994 PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Project	Feature	Benefits	Principal National Priorities				
			Economic Productivity	Energy Conservation	Safety/ Security	Environmenta Protection	Technological Leadership
Flight Service/Weather Projects							
Aeronautical Data Link	•Improve air-to-ground communications	•Reduce Controller/Pilot workload •Increased efficiency/safety •Increased capacity through error-free communications	●	●	●		●
Automated Weather Observing System	•Improved/more timely weather information	•Improved safety •Increased terminal capacity •Manpower savings	●		●		
Integrated Terminal Weather System	•Provide integrated timely weather products in terminal environment	•Decreased terminal delays •Improved safety	●	●			●
Aviation Weather Products Generator	• Provide integrated user weather graphics and forecast products in en route environment	• Decreased en route delays • Improved safety	●	●			●
Ground-to-Air Projects							
Long Range Radar	•Replace obsolete long range radars	•Lower maintenance/support costs •Improved safety	●	●	●		●
Next Generation Weather Radar	•Provide timely, accurate, and detailed ATC weather data	•Improved input to AAS •Increased safety •Increase fuel efficiency from improved weather data	●	●	●		●
Terminal Doppler Weather Radar	•Provide timely and accurate windshear data	•Increased safety •Decreased delays due to changing weather conditions	●		●		●
Precision Runway Monitor	•Provide parallel approaches to runways spaced <4300' >3400' apart during IMC	•Save fuel during IFR weather •Increase IFR runway capacity •Reduce IFR delays	●	●			●
Precision Landing Systems (ILS/MLS/GPS)	•Provide more precision approaches in US •Replace aging equipment •Potential means to clear-up ILS Frequency congestion	•Decreased Delays •Save fuel •Capacity increase/operating cost savings from curved approaches	●	●			●
Interfacilty Communications Projects							
Radio Control Equipment	•Replace obsolete radio control equipment (VFSS and keying control equipment)	•Reduce maintenance costs •Improve operational performance	●		●		
Routing and Circuit Restoral	•Provide automatic restoration and re-routing communications capability	•Safety and Delay benefits from faster fault detection & restoral •Potential Leased Comm savings	●		●		
Maintenance and Operations Projects							
Remote Maintenance Monitoring System	•Provide more timely fault monitoring and equipment status information	•Decreased maintenance costs	●				
ARTCC Plant Modernization	•Modernize aged plant and structures •Improve energy systems •Eliminate environmental problems	•Energy conservation •Elimination of environmental hazards	●	●			
Fuel Storage	•Eliminate leaking tanks which pose environmental threat	•Environmental law compliance •Improve environment				●	
ATCT Safety Upgrades	•Bring ATC tower facilities into compliance with OSHA safety standards	•Environmental hazard elimination •Improve workplace safety			●	●	

Table 3-1, Benefits of F&E Investments and Impact on National Priorities-continued

FY 1994 PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Project	Feature	Benefits	Principal National Priorities				
			Economic Productivity	Energy Conservation	Safety/ Security	Environmental Protection	Technological Leadership
Maintenance and Operations Projects							
Aircraft Fleet Modernization	• Provide aircraft equipment needed to meet flight inspection needs	• Upgrade avionics to new technology • Reduce noise pollution • Promote timely implementation of new navigation aids			●		
Computer Resources Nucleus	• Provide uniform, Agency-wide computing resource	• Provide timely, responsive, and economical ADP resource • Increase productivity of programs and personnel • Reduce procurement frequency ADP equipment	●				
Aviation Safety Analysis System	• Provide single safety related information data structure	• Improved access to more reliable and timely certification and safety information data			●		

Table 3-1, Benefits of F&E Investments and Impact on National Priorities-continued

SECTION 4: CURRENT SYSTEM LIMITATIONS AND THE NATIONAL IMPACT OF PROGRAM DELAYS

This section provides an overview of the limitations of the current U.S. air traffic control system and the cost of delays in the F&E modernization program to the public and to the aviation industry.

Although many of the aged systems in the NAS are in the process of being replaced, continuing infrastructure investment is needed. For example, en route automation equipment is still primarily comprised of equipment dating back to 1950 and 1960 technology, such as the WECO-300 communication switching equipment, the controller's display, and computer display channel, which is the primary means to distribute data from the Host radar tracking processor to the radar controller displays.

Sustained support of older systems results in significantly higher costs for providing continued service. The older systems consist of obsolete units and the ability to continue supply support is impaired. Equipment such as the plan view display (PVD), which is used with the computer display channel (CDC) and the computer update equipment (CUE) at the en route centers, are twenty years old and have some obsolete piece parts. The PVD keyboard originally cost $950 and today the replacement cost is $4,497 for the keyboard. Today's high unit cost is due to the re-engineering and development efforts required. There are 1,300 of these keyboards in the NAS today and they will be replaced by the advanced automation system/initial sector suite common console.

It is important to remember that FAA F&E projects help the airline industry by reducing their operating costs and increasing aviation safety. As airline activity increases over time, the capacity limitations of the current air traffic control system will exacerbate the problems that the airlines are currently facing. If system improvements are not made, delays will increase, causing airline operating costs to increase. Therefore, the FAA must continue the F&E modernization projects that will improve system capacity and ultimately save the user community time and money through reduced operating costs.

SECTION 5: SUMMARY

President Clinton stated in his report entitled "A Vision of Change for America", "We must invest more in our people, our plant and equipment, our infrastructure, and our research and development if we are to restore the American dream for our children." In his program to rebuild the nation's transportation system, the President specifically calls for additional investment for air traffic control modernization to meet projected increases in aircraft operations over the next ten years. The justification narratives which follow indicate those specific additional investments. The benefits of the FAA's air traffic control modernization program cited in the President's report include "reduced air travel delays, more efficient aircraft routing, fewer accidents, and more cost effective operation of the air traffic control system."

The F&E program is focused on continually improving the air traffic control system, and as such significantly contributes to building a stronger economy.

TOTAL NATIONAL AIRSPACE SYSTEM ACTIVITY

	1982	1992	1996	2001	2005	Percent Growth 1982-2005
NPIAS Airports (Existing)*	3195	3285	3400	3550	3700	15.8
Airport Operations (millions)						
Aircraft Operations*	127.6	134.8	148.5	164.2	176.9	38.6
Itinerant Operations*	68.0	79.1	88.2	98.6	106.9	57.2
Instrument Operations	31.7	45.6	50.0	55.4	58.5	85.5
Towered Airport Operations	50.6	61.5	67.0	73.5	77.4	53.0
ARTCC Operations (millions)						
IFR Aircraft Handled	27.9	36.7	40.0	44.3	47.4	69.9
ACF Approach Control Operations**	---	---	---	---	---	---
FSS Service (millions)	62.4	40.2	37.7	38.8	39.6	(36.5)
Hours Flown (millions)						
Air Carrier	6.1	10.6	12.4	14.5	16.0	162.3
General Aviation	37.7	29.9	31.9	34.3	35.6	(5.6)
Military	6.2	6.2	5.1	5.3	5.3	(14.5)
Domestic Enplanements (Revenue Passengers) (millions)						
Air Carrier	272.8	428.8	499.5	591.2	665.6	144.0
Commuter	17.8	42.8	56.4	76.2	94.6	431.5
Aircraft Fleet (thousands)						
Air Carrier	2.5	4.2	4.5	5.2	5.9	136.0
Commuter***	1.4	2.0	2.2	2.3	2.4	71.4
Total General Aviation	213.3	198.4	202.4	208.9	213.3	0.0
Civil Helicopter***	7.0	6.3	6.9	7.9	8.8	25.7
Total Military	21.7	19.2	16.2	16.1	16.0	(26.3)
Military Helicopter***	9.7	7.3	6.3	6.3	6.3	(35.1)
Pilots (thousands)						
Instrument Rated	252.5	303.2	319.9	342.2	360.3	42.7
Total Pilots	764.2	692.1	735.5	774.6	800.5	4.8

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[*] Aircraft operations forecasts are based on the existing airports included in the National Plan of Integrated Airport Systems (NPIAS).

[**] Approach control operations conducted for area control facilities equal the number of instrument operations conducted by towers.

[***] Civil helicopter and commuter fleets are included in the total general aviation fleet. Military helicopter fleet included in total military fleet.

Sources: Aviation System Capital Investment Plan (December 1991) and the "FAA Aviation Forecasts, Fiscal Years 1991-2004" (FAA-APO 93-1, February 1993).

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)
Fiscal Year 1994
Summary by Activity

Activity	FY 1993 Actual	FY 1994 Request	Difference Increase (+) Decrease (-)
1. Engineering, Development, Test and Evaluation			
a. En Route Programs	$543,900,000	$515,385,000	$- 28,515,000
Investment Amount	[0]	[28,000,000]	[+28,000,000]
b. Terminal Programs	8,800,000	13,650,000	+ 4,850,000
Investment Amount	[0]	[3,000,000]	[+3,000,000]
c. Flight Services Programs . .	0	0	0
d. Landing and Navigational Aid Programs	45,000,000	46,218,000	+ 1,218,000
e. Research, Test, and Evaluation Equipment Facilities . . .	27,800,000	30,700,000	+ 2,900,000
Investment Amount, Activity 1	[0]	[31,000,000]	[+31,000,000]
Total, Activity 1	625,500,000	605,953,000	- 19,547,000
2. Air Traffic Control Facilities and Equipment			
a. En Route Programs	399,219,000	589,648,000	+190,429,000
Investment Amount	[0]	[52,718,000]	[+52,718,000]
b. Terminal Programs	415,195,000	360,069,000	- 55,126,000
Investment Amount	[0]	[7,000,000]	[+7,000,000]
c. Flight Service Programs . . .	46,011,000	71,826,000	+ 25,815,000
Investment Amount	[0]	[12,000,000]	[+12,000,000]
d. Land and Navigational Aid Programs	100,684,000	101,459,000	+ 775,000
e. Other ATC Facility Programs .	192,765,000	123,419,000	- 69,346,000
Investment Amount	[0]	[4,000,000]	[+4,000,000]
Investment Amount, Activity 2	[0]	[75,718,000]	[+75,718,000]
Total, Activity 2	1,153,874,000	1,246,421,000	+ 92,547,000
3. Non-Air Traffic Control Facilities and Equipment			
a. Support Equipment	120,789,000	143,145,000	+ 22,356,000
b. Training Equipment and Facilities	17,000,000	44,650,000	+ 27,650,000
Total, Activity 3	137,789,000	187,795,000	+ 50,006,000
4. Mission Support			
a. System Support and Services, Total, Activity 4	241,837,000	281,831,000	+ 39,994,000
5. Personnel and Related Expenses			
a. Personnel and Related Expenses, Total, Activity 5	191,000,000	202,000,000	+ 11,000,000
Investment Amount Total	[0]	[106,718,000]	[+106,718,000]
Budget Authority Totals/ Net Differences	$2,350,000,000	$2,524,000,000	$+174,000,000

[] Brackets mean non-add.

General Statement

This fiscal year 1994 program continues the agency's efforts to modernize and improve air traffic control systems and airway facilities services. The requested budget authority totals $2,524,000,000. This consists of $2,417,282,000 for the base program and $106,718,000 requested separately as part of the President's investment proposal. Detailed justifications, on a project-by-project basis, begin on page 35.

Significant investments for major programs are: ($ in millions)

1. Advanced Automation System (AAS), $424.7; Voice Switching and Control System (VSCS), $61.5; and Microwave Landing System (MLS), $46.2.

2. Advanced Automation System (AAS), $31.1; Voice Switching and Control System (VSCS), $171.0; ARTCC Building Improvements/Support, $98.4; Remote Maintenance Monitoring System (RMMS) Program, $27.7; Employee Safety for Airport Traffic Control Towers (ATCT), $36.0; and Procure Flight Inspection Aircraft, $37.9.

3. Automated Data Processing (ADP) Facilities Management, $35.0; Hazardous Substance/Environmental Materials Management, $12.8; Aviation Safety Analysis System (ASAS), $20.0; and, FAA Employee Housing, $18.5.

4. System Engineering and Integration Contract, $121.2; Transition Engineering and Support, $48.3; and, Technical Services Support Contract, $64.9.

5. Personnel and Related Expenses, $202.0.

The justification is presented in a format which includes a summary level appropriation history for each program dating back to 1982, the FY 1993 enacted and FY 1994 request, and a projection for post-1994 estimated project costs. The aggregate costs beyond 1994 are shown for planning purposes only and do not constitute the outyear budget estimates. Note that the summary level appropriation history for each program is intended to reflect reprogrammed funds as approved by the Appropriations subcommittees. A statement of "8enefits" is included, along with a general breakdown of the budget year estimated costs by activity or task. At the upper right hand portion of each page of the justification there is a "CIP reference number, for example 21-12. In this example, the budget item requests funding associated with project number 12, chapter 2, section 1 of the Capital Investment Plan.

Pages 28 through 34 contain an index of all programs included in this budget request which identify the program title, number of locations, dollar amount, and page number.

Individual Program Justification

Projects	Locations	Amount	Page No.
1. Engineering, Development, Test and Evaluation			
a. En Route Programs			
1A01 Aviation Weather Development Program . . . . Base: $20,335,000 Investment: $3,000,000	0	$ 23,335,000	F&E-35
1A02 Advanced Automation System (AAS) . Base: $399,650,000 Investment: $25,000,000	Various	424,650,000	F&E-37
1A03 Automatic Dependent Surveillance (ADS)	1	4,200,000	F&E-41
1A04 Aeronautical Data Link (ADL) . . .	Various	1,700,000	F&E-43
1A05 Voice Switching and Control (VSCS)	Various	61,500,000	F&E-45
b. Terminal Programs			
1B01 Airport Surveillance Radar (ASR) . Base: $0 Investment: $3,000,000	Various	3,000,000	F&E-47
1B02 Runway Status Light System	1	2,000,000	F&E-49
1B03 Terminal ATC Automation (TATCA) .	Various	8,650,000	F&E-50
c. Flight Service Programs			
d. Landing and Navigational Aids Program			
1D01 Microwave Landing System (MLS) . .	Various	46,218,000	F&E-51
e. Research, Test and Evaluation Equipment and Facilities			
1E01 Independent Operational Test and Evaluation (IOT&E) Support . . .	Various	4,250,000	F&E-53
1E02 FAA Technical Center Facility - Technical Building Lease	1	5,290,000	F&E-54
1E03 Utility Plant Modifications . . .	1	1,660,000	F&E-55
1E04 NAS Improvement of System Support Laboratory	1	3,500,000	F&E-56
1E05 Technical Center Facilities . . .	1	9,000,000	F&E-57
1E06 Technical Center R&D Laboratory - Establish	1	3,500,000	F&E-58
1E07 CAMI Infrastructure - Modernization	1	1,400,000	F&E-59

Individual Program Justification

Projects	Locations	Amount	Page No.
1E08 Precision Automated Tracking System	1	2,100,000	F&E-60
Total, Activity 1		$605,953,000	
2. Procurement and Modernization of Air Traffic Control Facilities and Equipment			
a. En Route Programs			
2A01 Long Range Radar (LRR) Program - Replace	Various	20,417,000	F&E-61
2A02 ARSR-3 Leap Frog Program Base: $0 Investment: $7,500,000	2	7,500,000	F&E-63
2A03 Radio Communication Link Network	Various	15,500,000	F&E-64
2A04 Next Generation Weather Radar (NEXRAD) - Provide Base: $36,600,000 Investment: $17,000,000	10	53,600,000	F&E-66
2A05 Air Traffic Control En Route Radar Facilities Improvements	Various	16,398,000	F&E-67
2A06 Advanced Automation System (AAS)	Various	31,100,000	F&E-68
2A07 En Route Software Development and Integration Support	Various	10,600,000	F&E-69
2A08 Central Weather Processor (CWP)	0	1,400,000	F&E-70
2A09 Aeronautical Data Link (ADL) Base: $19,900,000 Investment: $2,500,000	Various	22,400,000	F&E-71
2A10 En Route Automation Equipment	Various	4,000,000	F&E-72
2A11 Oceanic Automation System Base: $25,282,000 Investment: $1,718,000	3	27,000,000	F&E-73
2A12 Air Route Traffic Control Center (ARTCC) Improvement/Plant Modernization/Space Expansion	Various	98,385,000	F&E-75
2A13 National Airspace Data Interchange Network (NADIN) Enhancement II	Various	8,500,000	F&E-77
2A14 Voice Switching and Control System (VSCS) Base: $151,000,000 Investment: $20,000,000	Various	171,000,000	F&E-78
2A15 Remote Communication Facilities (RCFs) Expansion/Relocation	Various	10,000,000	F&E-79
2A16 Traffic Management System (TMS) Base: $19,600,000 Investment: $4,000,000	Various	23,600,000	F&E-80
2A17 Data Multiplexing Network (DMN)	Various	17,500,000	F&E-81
2A18 Critical Communications Support	Various	2,000,000	F&E-82

Individual Program Justification

Projects		Locations	Amount	Page No.
2A19	En Route Communications and Control Facilities	Various	11,548,000	F&E-83
2A20	Central Flow Control Facility Relocation	1	1,400,000	F&E-85
2A21	Air/Ground Communications Radio Frequency Interference (RFI) . .	Various	5,000,000	F&E-86
2A22	Modernize/Upgrade Central Altitude Reservation Function (CARF) . .	Various	1,500,000	F&E-87
2A23	Display Channel Complex Rehost . .	Various	10,800,000	F&E-88
2A24	Long Range Radar (LRR) Program Establish	Various	10,000,000	F&E-89
2A25	DOD Base Closure-Facility Transfer	Various	7,600,000	F&E-90
2A26	Performance Monitoring Analysis .	Various	900,000	F&E-91
b. Terminal Programs				
2B01	Airport Surveillance Radar	Various	44,300,000	F&E-93
2B02	Terminal Doppler Weather Radar (TDWR)	Various	5,800,000	F&E-94
2B03	Mode S - Provide	Various	10,100,000	F&E-95
2B04	Digital Bright Radar Indicator Tower Equipment (DBRITE)	Various	8,000,000	F&E-96
2B05	Precision Runway Monitors	Various	27,000,000	F&E-97
2B06	Airport Movement Area Safety System (AMASS)	17	13,100,000	F&E-98
2B07	Mode C Intruder (MCI) - Expand ARTS IIIA Capacity	Various	2,500,000	F&E-99
2B08	Southern California Terminal Radar Approach Control (TRACON) Facilities Consolidation	Various	1,000,000	F&E-100
2B09	Dallas/Ft. Worth Metroplex Program	1	13,300,000	F&E-101
2B10	Terminal Software Development Support	Various	7,400,000	F&E-102
2B11	Chicago Terminal Radar Approach Control (TRACON) Relocation . .	1	18,200,000	F&E-103
2B12	ARTS IIIE Upgrades for Selected Air Traffic Facilities	2	23,600,000	F&E-104
2B13	Remote Maintenance Monitoring System (RMMS) . . . . Base: $20,700,000 Investment: $7,000,000	Various	27,700,000	F&E-105
2B14	Terminal Air Traffic Control Facilities Replacement	10	1,000,000	F&E-106

Individual Program Justification

Projects	Locations	Amount	Page No.
2B15 Air Traffic Control Facilities Modernization	Various	25,212,000	F&E-108
2B16 Emergency Transceiver Replacement	Various	3,000,000	F&E-110
2B17 New Denver Airport Establishment	1	1,200,000	F&E-111
2B18 Terminal Voice Switch Replacement (TVSR)	61	26,600,000	F&E-112
2B19 Radio Control Equipment (RCE)	Various	14,900,000	F&E-113
2B20 Terminal Communications Improvement	Various	2,062,000	F&E-114
2B21 Employee Safety for Airport Traffic Control Towers (ATCT)	Various	36,000,000	F&E-115
2B22 Airport Surface Detection Equipment (ASDE) - Additional Establishment	Various	12,600,000	F&E-116
2B23 ARTS IIA Mode C Intruder Capability and Video Compression	Various	26,100,000	F&E-117
2B24 Terminal Radar Systems - Improve	Various	9,395,000	F&E-118
c. Flight Service Programs			
2C01 Flight Service Station (FSS) Modernization	Various	8,800,000	F&E-119
2C02 Direction Finder (DF) Network Program	60	10,000,000	F&E-121
2C03 Automated Surface Observing System (ASOS) Base: $19,900,000 Investment: $10,000,000	106	29,900,000	F&E-122
2C04 Weather Message Switching Center Replacement (WMSCR)	2	3,600,000	F&E-124
2C05 Digital Altimeter Setting Indicator (DASI) Replacement	50	1,500,000	F&E-125
2C06 FSAS Operational and Supportability Implementation System (OASIS) Base: $12,600,000 Investment: $2,000,000	63	14,600,000	F&E-126
2C07 Flight Service Facilities Improvement	Various	3,426,000	F&E-127
d. Landing and Navigational Aids Program			
2D01 Very High Frequency Omni-directional Radio Range (VOR) With Distance Measuring Equipment (DME)	Various	15,100,000	F&E-128
2D02 Approach Lighting System Improvement Program (ALSIP)	3	1,700,000	F&E-130

Individual Program Justification

Projects		Locations	Amount	Page No.
2D03	Instrument Landing System (ILS) Replacement (Mark 1A, 1B, and 1C)	Various	20,000,000	F&E-131
2D04	Instrument Landing System (ILS) Establishment	Various	36,174,000	F&E-132
2D05	Visual Navaids	34	6,310,000	F&E-134
2D06	Low Level Windshear Alert System (LLWAS) Upgrade to Phase III . .	Various	2,200,000	F&E-135
2D07	Runway Visual Range (RVR)	17	3,000,000	F&E-137
2D08	ILS and Visual Navaid Component Sparing	Various	5,000,000	F&E-138
2D09	ILS - FAA Assumption of Airport Improvement Program Funded Systems	Various	3,000,000	F&E-139
2D10	Navigational and Landing Aids - Improve	Various	8,975,000	F&E-140
e.	Other ATC Facilities Programs			
2E01	Alaskan NAS Interfacility Communications System (ANICS) . Base: $9,000,000 Investment: $4,000,000	Various	13,000,000	F&E-141
2E02	Fuel Storage Tank Replacement and Monitoring	Various	9,000,000	F&E-142
2E03	FAA Buildings and Equipment . . .	Various	17,000,000	F&E-143
2E04	Electrical Power Systems	Various	7,000,000	F&E-144
2E05	Air Navigational Aids and Air Traffic Control Facilities (Local Projects)	Various	7,019,000	F&E-145
2E06	Air Navigational Facilities/Air Traffic Control System Support .	Various	9,000,000	F&E-146
2E07	Land/Easement Purchase for Existing Airway Facilities	Various	6,000,000	F&E-147
2E08	Aircraft Related Equipment	Various	12,000,000	F&E-148
2E09	Flight Inspection Aircraft Procurement	2	37,900,000	F&E-151
2E10	Large Airport Cable Loop Sustained Support	Various	1,000,000	F&E-152
2E11	Computer Aided Engineering Graphics (CAEG) System	Various	1,500,000	F&E-153
2E12	Special Use Airspace Management System (SAMS)	Various	3,000,000	F&E-154
	Total, Activity 2		$1,246,421,000	

Individual Program Justification

Projects	Locations	Amount	Page No.
3. Procurement and Modernization on Non-Air Traffic Control Facilities and Equipment			
a. Support Equipment			
3A01 Automated Data Processing (ADP) Facilities Management (CORN)	12	35,000,000	F&E-155
3A02 Airport Datum Monument Program	300	1,500,000	F&E-157
3A03 National Airspace System (NAS) Recovery Communication (RCOM)	Various	6,800,000	F&E-158
3A04 NAS Management Automation Program	Various	8,000,000	F&E-160
3A05 Hazardous Materials Management	Various	12,750,000	F&E-161
3A06 Aviation Safety Analysis System (ASAS)	Various	20,000,000	F&E-163
3A07 Operations Data Management System (ODMS)	Various	4,650,000	F&E-164
3A08 FAA Employee Housing	Various	18,500,000	F&E-165
3A09 Logistics Support Systems and Facilities	1	5,000,000	F&E-166
3A10 Test Equipment - Maintenance Support for Replacement Equipment	Various	9,000,000	F&E-168
3A11 Radio Frequency Interference (RFI) Vans	Various	2,000,000	F&E-169
3A12 Child Care Centers	Various	4,845,000	F&E-170
3A13 Integrated Flight Quality Assurance	Various	2,500,000	F&E-172
3A14 Explosive Detection System - Installation Operations and Maintenance	Various	1,500,00	F&E-173
3A15 Airmen and Aircraft Registry Reporting System	1	9,100,000	F&E-175
3A16 National Aviation Safety Data Center	Various	2,000,000	F&E-176
b. Training, Equipment and Facilities			
3B01 Simulation Based Training Systems	Various	24,300,000	F&E-177
3B02 Computer Based Instruction (CBI)	Various	7,650,000	F&E-178
3B03 Aeronautical Center Training and Support Facilities	1	6,600,000	F&E-180
3B04 National Airspace System (NAS) Training Facilities	2	6,100,000	F&E-182
Total, Activity 3		$187,795,000	

Individual Program Justification

Projects	Locations	Amount	Page No.
4. Facilities and Equipment Mission Support			
a. System Support and Services			
4A01 System Engineering and Support Contract (SEIC)	Various	121,157,000	F&E-184
4A02 Logistics Support Services (LSS) .	Various	12,000,000	F&E-185
4A03 Human Resources Management Program for National Airspace System (NAS) Transition/Implementation . . .	Various	1,700,000	F&E-186
4A04 Mike Monroney Aeronautical Center Lease	1	13,200,000	F&E-188
4A05 In-Plant National Airspace Space (NAS) Contract Support Services	Various	5,400,000	F&E-189
4A06 Transition Engineering Support . .	Various	48,274,000	F&E-190
4A07 National Airspace Integrated Logistics Support (NAILS) . . .	Various	7,000,000	F&E-191
4A08 Frequency and Spectrum Engineering and Interference Support/ Resolution	Various	3,500,000	F&E-192
4A09 Acquisition Oversight	Various	1,700,000	F&E-193
4A10 Technical Support Services Contract (TSSC)	Various	64,900,000	F&E-194
4A11 FAA System Architecture	Various	3,000,000	F&E-195
Total, Activity 4		$281,831,000	
5. Personnel and Related Expenses		$202,000,000	F&E-197
Total, All Activities		$2,524,000,000	

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1A01 Fiscal Year 1994 CIP: 63-20; 63-21; 63-22

Program Title: Aviation Weather Development Program

Location: 0

Base	:	$20,335,000
Investment	:	3,000,000
Total Amount:		$23,335,000

Basis for Request: The Aviation Weather Services program will improve the safety and efficiency of the NAS by providing improved weather information. The aviation weather system combines additional weather observations, improved forecast technology, and more efficient distribution of information to pilots, controllers, and other automated systems. This program will build upon the capital investment of present and planned NAS weather programs, and the planned modernization and restructuring of the National Weather Service (NWS).

Description of Problem: Current weather information systems can only report the present state of the weather and forecast future weather with very low resolution. The problem is that all NWS forecasts are based on 12-hourly observations which are spaced by about 200 miles across the United States. With this observational restriction, the high resolution (in space and time) forecasts needed by the aviation community are not available (or possible). New tools are needed to take advantage of the high resolution observation systems that will be available by the middle of the decade.

Description of Solution: Provide $23,335,000 to continue the improvement in aviation weather services through the following:

> Integrated Terminal Weather System (ITWS). The ITWS will integrate and arbitrate observation data from airport ground-based weather sensors, automatic upper air observation reports from aircraft, and high resolution NWS forecast information to generate terminal weather forecasts, warnings, and other information for use by controllers, pilots flight service station specialists, traffic management specialists, dispatchers, airport operators, and other FAA air traffic control automation systems currently under development.
>
> Aviation Weather Products Generator (AWPG). This program develops a high resolution aviation weather forecasting system to be implemented by the National Weather Service, from which the ITWS and AWPG will generate observation, warning, and forecast products. The AWPG will receive weather forecast data from the NWS and generate specific weather observation, warning, and forecast information. These information products will be made available to aviation users via existing and planned NAS systems. The AWPG will distribute its information in highly usable form directly to controllers, traffic managers, and pilots, without intervening meteorological interpretation.

The FY 1994 effort will continue the prototyping phase of the ITWS with the deployment of an ITWS demonstration unit at Dallas-Fort Worth to provide required weather data to the terminal air traffic control automation (TATCA) demonstration units. Additionally, initial operational capability (IOC) product development will continue with emphasis on accurately representing the terminal area wind field, detection and tracking of hazardous cells, and microburst prediction. AWPG test systems will be deployed at Denver center weather service unit (CWSU), a selected flight service station, an airline dispatch office, and at the air traffic control system command center (ATCSCC) to demonstrate that the aviation gridded forecast system (AGFS) and AWPG prototypes can perform in an operational environment. The AGFS is a gridded database of aviation impact variables used by AWPG to generate meteorological products.

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Benefits: The major benefits from the development and deployment of the ITWS and AWPG will be (1) improved airport and en route capacity by accurate, high resolution, timely forecasts of changing weather conditions affecting airport and en route operational capacity; (2) improved present and forecast upper winds for efficient flight planning and traffic management; and (3) increased flight safety through improved aviation weather hazard forecasting, (e.g., icing, turbulence, severe storms, microbursts, or high winds).

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	3	$ 18,400.0
FY 1993 Appropriated	---	22,200.0
FY 1994 Request	---	23,335.0
Future Requirement	70	132,965.0
Total	73	$196,900.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. ITWS Rapid Prototype Systems	---	$ 9,000.0
2. AWPG Rapid Prototype System	---	14,335.0
Total	---	$23,335.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1A02 and 2A06 Fiscal Year 1994 CIP: 21-12

Program Title: Advanced Automation System (AAS)

1A02 $424,650,000 Location: Various

Base :	$399,650,000
Investment :	25,000,000
Total Amount:	$424,650,000

2A06 $31,100,000

Basis for Request: The current Air Traffic Control (ATC) System must be expanded and improved to increase capacity and improve ATC productivity. The advanced automation system (AAS) will provide a new automation system that includes controller workstations, computer software, and processors necessary to handle projected workloads beyond the year 2000. In order for the new automation system to be installed, the air route traffic control centers (ARTCCs) require modifications and improvements.

The advanced automation system will be implemented in five steps. The stages or segments of the AAS program are: 1) Peripheral Adapter Module Item (PAMRI); 2) Initial Sector Suite System (ISSS); 3) Terminal Advanced Automation System (TAAS); 4) Tower Control Computer Complex (TCCC); 5) Area Control Computer Complex (ACCC) combined with Automated En Route Air Traffic Control (AERA) functionality.

PAMRI is the first step or segment of the program. It is replacing the aging hardware in 20 ARTCC's that interfaces with radars and communicates radar data to central computers. PAMRI deliveries have been made to all 20 sites and is scheduled to be operational at all sites by April 1993, 3 months ahead of schedule.

ISSS will replace existing 1960's vintage en route display equipment and paper flight strips with new workstations (common consoles) and electronic flight strips. ISSS will greatly improve reliability and flexibility and will be the platform for future en route automation enhancements.

TAAS will provide full AAS processing equipment to the ARTCCs and new software that will provide approach and departure control functionality. TAAS hardware and software will also be installed in designated metroplex terminal radar approach control facilities (MCF's). Hardware and site specific software for MCF's will be funded under separate budget items. The TAAS in MCF's will allow bordering airspace in high volume areas to be combined into one facility and operate on a single automation system. TAAS is the basis for user benefits in the MCF and is the platform for future approach/departure automation enhancements.

TCCC will replace the BRITE displays that are now in the control towers and paper flight strip printers with new tower controller workstations and processing suites. TCCC will be sized to meet three different levels of air traffic activity. TCCC will automate many controller functions and will include voice recognization capabilities.

ACCC/AERA will be implemented in 4 separate software packages: 1) host replacement (ACCC package 1); 2) initial AERA services (ACCC package 2); full AERA services (ACCC package 3); and full ACCC functionality (ACCC package 4). ACCC and AERA were restructured to provide the benefits of AERA functionality improvements as early as possible. ACCC software when complete will provide all new software, combining current en route and terminal functionality, providing new functionality through AERA. AERA will provide the full benefits of the AAS program. An effort to develop and test a subset of initial AERA services, called early AERA, will be undertaken to bring some AERA benefits to users in the ISSS timeframe.

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Description of Problem: Due to age and design characteristics, present en route and terminal automation systems are limited in capacity and capability, and have a high maintenance cost. These systems must be replaced with a new system that will support both present and future functions in a common system design that will meet the longer term requirements for availability, expandability, and efficiency.

The AAS cannot be installed in the ARTCCs as they exist today. Space in the control wing basement of the ARTCCs must be refurbished and additional power generators must be procured and installed. At ARTCCs that were not expanded during the early 1980's in conjunction with Host computer programs, additional or new space must be constructed.

Description of Solution: Provide $455,750,000 for the AAS acquisition contract, technical support, training, field support, and ARTCC modernization efforts in FY 1994. $424,650,000 is requested in budget item number 1A02 to continue full scale development of all segments of the AAS program, and $31,100,000 is requested in budget item 2A06 to prepare the ARTCCs for installation of AAS equipment.

During FY 1993, the ISSS segment of the program underwent an intensive review to rebaseline the program and establish credible ISSS schedules. Major emphasis was placed on revising the FAA approach to managing the AAS program with emphasis on ISSS. During the year, ISSS requirements issues were resolved, and the contract was modified to include those requirements that were mission critical to successful operational test and evaluation at the FAA Technical Center. Software development continued on those requirements that were necessary to accept the system at the factory. Work continued on preparing the 1.15 million lines of ISSS software for a full configuration test environment. Requirements for the test bed at the FAA Technical Center were finalized, and the laboratory expansion at the FAA Technical Center that will be used for AAS testing was completed.

Also during FY 1993, TAAS software development continued. Five of the planned seven software builds were completed and passed software integration testing. All three surveillance thread demonstrations were successfully completed.

Requirements for the three incremental sizes of TCCC have been identified and the process of modifying the AAS contract has been started. During FY 1993, most TCCC efforts were suspended in order to fully support the PAMRI, ISSS and TAAS request.

Critical design review was completed for ACCC host replacement software, the first software package (ACCC package 1) of four ACCC/AERA software packages that will be developed. Remaining ACCC and AERA development efforts were suspended during FY 1993.

ARTCC site preparation activities continued in FY 1993. Contracts were awarded at 5 sites for the third phase of the effort to refurbish ARTCCs and prepare them for AAS equipment installation. In addition, construction of facilities to house new power generator equipment began at 4 sites. Funding also provided for the procurement of 2 engine generators, 5 uninterruptable power system modules and associated switchgear for each ARTCC required for ISSS implementation.

Funds appropriated in FY 1993 for these activities were sufficient to support the ISSS schedule that was modified early in FY 1993. Completion of these activities are on the critical path for ISSS and TAAS implementation. Construction of new power equipment facilities and procurement of power equipment must be accomplished before VSCS is installed.

During FY 1994, a contract modification will be completed to rebaseline the ISSS segment of the program and freeze requirements. Development of all of the software functionality required to conduct operational test and evaluation at the FAA Technical Center will be completed and delivered to FAATC. There, integration will begin with the current level of operational ARTCC software on the system support computer complex (SSCC) that will be used as the ISSS test bed at FAATC. All of the SSCC hardware to be used for ISSS testing will be delivered, installed and checked out during FY 1994. The test bed will be moved to the new laboratory expansion building. Formal acceptance tests will begin at FAATC on the ISSS system.

TAAS software integration will continue at the factory as coding is completed and turned over to the contractor's integration test organization.

TCCC requirements changes will be negotiated in to the AAS contract to reflect three sizes (stages I, II, and III) of TCCC systems to handle different levels of air traffic volume at air traffic control towers. TCCC will be designed to be incremental in that the basic system (TCCC stage III) will be unchanged irrespective of the amount of air traffic to be handled. The requirements of increasing volumes of traffic will be met by incrementally adding to the hardware and software (TCCC stages I and II). Critical design review will be conducted on TCCC stage III during FY 1994. And design and development on TCCC I and II will begin.

ACCC and AERA efforts will resume in FY 1994. Requirements for initial AERA services, the second ACCC/AERA software package (ACCC package 2) will be frozen, and design and development will begin. An effort to develop and test a subset of initial AERA services, called early AERA, will be undertaken to bring some AERA benefits to users in the ISSS timeframe.

ARTCC site preparation activities will continue in FY 1994. Contracts will be awarded at 2 sites for the third phase of the effort to refurbish ARTCCs and prepare them for AAS equipment installation. Construction of facilities to house new power generator equipment will begin at 2 sites. Funding also provides for procurement of 2 engine generators, 5 uninterruptable power system modules and associated switchgear for each ARTCC required for ISSS implementation.

Funding requested in FY 1994 for these activities will support the ISSS schedule that was modified early in FY 1993. Completion of these activities is on the critical path for ISSS and TAAS implementation. In addition, construction of new power equipment facilities and procurement of power equipment will be completed as required before VSCS is installed.

Benefits: The new system will provide the capacity to handle civil and military air traffic growth beyond the year 2000. The automated en route air traffic control functions that are delivered as part of this program, will improve productivity of air traffic controllers, allowing them the ability to safely handle the growing air traffic.

APPROPRIATION SUMMARY

	Activity 1	Activity 2	Total Amount ($000)
Appropriated (FY 1982-1992)	$1,932,521.4	$ 0.0	$1,932,521.4
FY 1993 Appropriated	302,000.0	55,800.0	357,800.0
FY 1994 Request	424,650.0	31,100.0	455,750.0
Future Requirement	721,661.0	1,235,689.0	1,957,350.0
Total	$3,380,832.4	$1,322,589.0	$4,703,421.4

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COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Engineering, Development, Test and Evaluation:		
Prime Contract	---	$327,750.0
AERA	---	22,500.0
Technical Support	---	42,950.0
Field Support	---	24,320.0
Training	---	7,130.0
Total	Various	$424,650.0
2. Procurement and Modernization of ATC Facilities and Equipment:		
ARTCC Modernization	---	31,100.0
Total	Various	$31,100.0
Total	Various	$455,750.0

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(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1A03 Fiscal Year 1994 CIP: 61-22

Program Title: Automatic Dependent Surveillance (ADS)

Amount: $4,200,000 Location: 1

Basis for Request: The FAA has been delegated under an international civil aviation organization (ICAO) agreement to provide air traffic services over several million square miles of oceanic airspace. This task comes with the responsibility to provide service that is safe, efficient, and adheres to international requirements and procedures. Automation will replace the current technology which require aircraft to manually report their position to ATC via noisy, sometimes unreliable, high frequency voice through a third party (Aeronautical Radio Incorporated). This manual system, still the primary means of oceanic surveillance today, requires that aircraft be separated by very large distances to maintain safety. The result is millions of dollars of extra costs for air carriers that are unable to fly in optimum airspace, or close to it, because another aircraft is already there. ADS automates the manual system by providing automated position reports and data communication through satellite communication that is more frequent as well as more reliable than the manual system.

Description of Problem: Current oceanic ATC operations are conducted manually due to the of lack of surveillance and direct pilot-controller communications. Progress reports and controller communications are presently relayed via high frequency (HF) radio links. Handling delay and the unreliability of HF radio limit ATC control actions which result in airspace inefficiency and the inability to approve flight plan changes. This forces aircraft to operate on inefficient routes and altitudes. The ADS system will provide automatic position reporting with a direct communications two-way link between the aircraft and the controller. It will result in timely position reporting and has the capability to increase airspace capacity, while improving safety and allowing flexibility in flight planning.

Description of Solution: Provide $4,200,000 to complete the implementation of a base system that will provide a limited ADS two-way data link to incorporate an electronic message communications capability between controllers in the New York and Oakland ARTCC's and cockpits. This will significantly improve the ability of the air traffic controller to interpret and respond to a more dynamic oceanic air traffic control situation.

Benefits: Providing oceanic controllers with direct two-way communications with the aircraft will facilitate changing flight plans while airborne which will improve aircraft utilization, and increase safety. Other benefits include fuel economy and flight plan validation. The ADS system will detect aircraft that inadvertently stray from assigned routes. With near real time monitoring of the aircraft's position, aircraft deviation and the unauthorized use of prohibited airspace can be significantly reduced or eliminated.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$22,800.0
FY 1993 Appropriated	2	5,000.0
FY 1994 Request	1	4,200.0
Future Requirement	---	0.0
Total	3	$32,000.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Completion of Implementation of Limited Two-Way Data Link Communications	1	$4,200.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1A04 and 2A09 Fiscal Year 1994 CIP: 23-05; 63-05;

Program Title: Aeronautical Data Link (ADL)

Amount: 1A04 $ 1,700,000
2A09 $22,400,000

Location: Various

Basis for Request: There are many safety and economic benefits can be gained by improving communications between aircraft and the ground. Increased air traffic and the quality of available data on the ground have strained the capability of systems that rely on voice communications. This program provides the infrastructure to interconnect information on the ground with systems to transmit the data to the aircraft and develops the necessary applications and protocols to utilize the link effectively. Programs such as the advanced automation system (AAS), terminal air traffic control automation (TATCA) and airport movement area safety system (AMASS) require the communications functionality provided by the ADL program for domestic and oceanic air traffic control (ATC) data link services.

Description of Problem: There is no system currently in the National Airspace System (NAS) which ties together the data link capabilities inherent in satellite, Mode S, and VHF air-ground data transmission systems with the NAS ground data sources. There is also no NAS element in place to support the planned international data communications network for the transfer of aeronautical information, both ground-ground and air-ground. In addition, data link services need to be defined, developed, and implemented to supplement the current voice-based air-ground communications system.

Description of Solution: The essential NAS elements of the ADL program include the data link processor (DLP) and the tower data link system (TDLS). The TDLS is in operation at thirty airports, providing the Pre-Departure Clearance (PDC) service. Phase I of the DLP provides pilots with six weather services which are terminal forecasts, surface observations, radar summaries, pilot reports, wind and temperature aloft forecasts, and hazardous weather. In Phase II message routing capabilities will be added to the DLP known as the aeronautical telecommunications network (ATN). The ATN provides the air-ground data link communications required by other NAS programs such as AAS, TATCA, et al for ATC data link communications. The Phase II DLP will implement new services such as wind shear advisories, center weather advisories, notices to airmen, automatic terminal information services (ATIS) and delivery of predeparture clearances (PDC) via the ATN.

Under Budget Activity 1, provide $1,700,000 in FY 1994 for continued engineering and programmatic support for activities associated with Phase II DLP implementation. This sustaining activity facilitates the software enhancements which supports the implementation of the ATN, and advanced ATC data link applications.

Under Budget Activity 2, provide $22,400,000 for the seventh year of a multi-year program to establish a data link capability within the NAS. Work to be funded in FY 1994 includes (1) continuation of the Phase II DLP software development and start of integration testing of the ATN message routing function which uses satellite, Mode S, and VHF data links; (2) procure an additional 30 TDLS systems; (3) Phase II enhancement to the TDLS to provide synthesized voice for digital ATIS; (4) preliminary work to investigate for potential hardware and software enhancements to the HOST Computer Systems to provide an interface to the Phase II DLP; as well as continued production software development of terminal and en route ATC data link applications for radio frequency transfers, changes in altitude assignment, predefined menu text messages and a free text capability for emergency communications.

Benefits: Data link services will enhance safety by allowing direct pilot access to weather and ATC information and by reducing communications errors. Pilot and controller workload will be reduced. FAA incorporation of the ATN will support the worldwide use of common data link avionics and support the evolution to common operational procedures across terminal, en route, and oceanic airspace. Programs such as AAS, TATCA and AMASS will have the required data link communications infrastructure for domestic and oceanic ATC data link services without causing delays in the implementation of these programs.

APPROPRIATION SUMMARY

	Activity 1	Activity 2	Total Amount ($000)
Appropriated (FY 1982-1992)	$ 0.0	$50,241.0	$ 50,241.0
FY 1993 Appropriated	1,700.0	19,300.0	21,000.0
FY 1994 Request	1,700.0	22,400.0	24,100.0
Future Requirement	. a/	. a/	137,900.0
Total	$3,400.0	$91,941.0	$233,241.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Engineering and Acquisition Support	---	$ 1,700.0
2. Centrally Procured Equipment and Services	---	22,400.0
Total	Various	$24,100.0

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a/ Future year development and procurement requirements have not yet been defined.

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1A05 and 2A14 Fiscal Year 1994 CIP: 21-11

Program Title: Voice Switching and Control System (VSCS)

Amount: 1A05 $61,500,000
2A14 $171,000,000

Locations: Various

Basis for Request: This program provides for the completion of full scale development and production of a voice switching and control system (VSCS) that will provide an integrated air/ground and ground/ground voice communications system that will meet current and future operational requirements.

Description of Problem: The introduction of higher levels of automation to meet the increasing demands for service exceeds the capabilities of the agency's various communications facilities and systems. The Bell 300 voice switch is not capable of the automatic reconfiguration required by the advanced automation system, is not expandable to meet the need of sector suite common consoles, much less the TRACON consolidation, and is very old with future reliability in question. The current system must be replaced with a state-of-the-art communication system. The VSCS position equipment will be installed in the existing en route controller workstations to allow for an orderly transition to the sector suites of the advanced automation system (AAS). The sector suites cannot be commissioned until the VSCS is in place and operating.

Description of Solution: Provide $232,500,000 for the VSCS acquisition contract, technical support, and implementation costs. $61,500,000 is required to complete development, and $171,000,000 is required for full scale production.

During FY 1993, limited production decision will be authorized, operational test and evaluation training will be completed, and formal operational test and evaluation will be conducted at the FAA Technical Center.

Also in FY 1993, site surveys will be conducted at 7 sites, and procurement of long lead materials for 9 sites and system orders for 3 sites will be accomplished. Test platforms at the contractor's facility will be installed to allow continuation of software development and test for software upgrades (PPI). Site preparation activities will continue at ARTCC's.

During FY 1994, software upgrades containing essential requirements will be integrated at the FAATC and operational tests and evaluations will be completed. The physical and functional configuration audits for the system meeting essential requirements will be completed. Factory acceptance tests of software meeting those requirements necessary to transition to ISSS will be started. Software development will begin on functionality required to meet all of the VSCS requirements for the ISSS transition timeframe.

Also during FY 1994, the full production decision will be made. Site surveys will be conducted at 12 sites. Production systems will be delivered to the first 4 sites. Funding provides for ordering long lead material for 10 sites and ordering production systems for 11 sites.

At the first operational site, Seattle, site installation and checkout, and system acceptance tests will be completed. Contractor Acceptance Inspection will be conducted on the hardware and software required for the M-1 (current en route ATC) console.

At the second operational site, Salt Lake City, site installation and checkout and system acceptance tests will be completed on the hardware and software required for the M-1 consoles.

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At the FAA Academy, installation and checkout and system acceptance tests will be completed. Operational training on the system installed in M-1 consoles will begin.

Benefits: The VSCS will be based on a design concept that will permit standardization of console equipment, switching system interfaces, and radio control equipment. It will provide a very high level of availability in the support of critical ATC functions. The design will facilitate maintenance while providing efficient utilization of transmission resources.

APPROPRIATION SUMMARY

	Activity 1	Activity 2	Total Amount ($000)
Appropriated (FY 1982-1992)	$468,170.0	$ 0.0	$ 468,170.0
FY 1993 Appropriated	213,000.0	33,000.0	246,000.0
FY 1994 Request	61,500.0	171,000.0	232,500.0
Future Requirement	0.0	460,300.0	460,300.0
Total	$742,670.0	$664,300.0	$1,406,970.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Activity 1		
1. Prime Contract	---	$ 58,500.0
2. Technical Support	---	3,000.0
Total	Various	$61,500.0
Activity 2		
1. Prime Contract	---	$148,154.0
2. Technical Support	---	9,500.0
3. Field Support	---	13,346.0
4. Training	---	0.0
Total	Various	$171,000.0
Total Program		$232,500.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1B01 and 2B01	Fiscal Year 1994	CIP: 34-13; 24-13; 64-13

Program Title: Airport Surveillance Radar (ASR)

1B01 Locations: Various

Base	:	$ 0
Investment	:	3,000,000
Total Amount:		$3,000,000

2B01 $44,300,000

Basis for Request: To meet air traffic control requirements, the FAA provides airport surveillance radar services at qualified airports. The airport surveillance radar provides the means for determining the position of aircraft approaching, departing, or passing through airport terminal areas.

Description of Problem: Under Budget Activity 1: (a) after completion of the ASR-9 program, many terminal areas will have ASR-7/8 radars, which must be modified in order to provide digitized radar data, or be replaced by a radar system functionally equivalent to the ASR-9 radar system, and (b) the hazardous weather detection capability of the ASR-9 must be enhanced to provide wind shear warnings at airports not planned to receive terminal doppler weather radar.

Under Budget Activity 2: (a) ASR-9 projects partially funded in previous years need to be completed, (b) the ASR-7/8 leapfrog program has experienced cost growth, and (c) the ASR-9 transmitter has reliability problems which must be resolved.

Description of Solution: Under Budget Activity 1: (a) provide $2,000,000 to continue engineering and programmatic support for the solicitation of the terminal radar digitizing program for the replacement or modification of analog terminal surveillance radar systems; (b) provide $1,000,000 to continue development of radar modifications, data processing computers, and processing algorithms that enable an ASR-9 to detect low-altitude windshear.

Under Budget Activity 2: (a) provide $18,300,000 to complete the ASR-9 installation at Grand Junction, CO and Portland, ME; (b) provide $10,000,000 to continue the establishment of the ASR second sensor at Atlanta, GA; (c) provide $7,000,000 for the ASR 7/8 leapfrog program because of cost growth resulting from schedule delays in ASR-9 implementation; (c) provide $3,000,000 to continue modification of the ASR-9 transmitter to resolve reliability problems, $4,000,000 for the standardization of the Tampa/Sarasota terminal radar facility and $2,000,000 for continued engineering and programmatic support.

Benefits: Terminal radar reduces delays and improves safety at congested airports. During instrument meteorological conditions, the radar provides controllers information that permits closer aircraft operations and greater traffic volume. Establishing new radars, as well as improving existing radars, ensures the continuation of maximum service capabilities during poor visibility, nighttime, and adverse local weather conditions.

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	Activity 1	Activity 2	Total Amount ($000)
Appropriated (FY 1982-1992)	$4,000.0	$750,846.3	$754,846.3
FY 1993 Appropriated	4,000.0	19,900.0	23,900.0
FY 1994 Request	3,000.0	44,300.0	47,300.0
Future Requirement	. a/	. b/	.
Total	$11,000.0	$815,046.3	$826,046.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Budget Activity 1:		
Terminal Surveillance Radar Digitizing	---	$ 2,000.0
ASR-9 Mod for Windshear Detection	---	1,000.0
Budget Activity 2:		
ASR Establishment	---	44,300.0
Total	Various	$47,300.0

---

a/ Future year development requirements have not yet been defined.

b/ An additional $25,500,000 will be required in future years to complete the ASR-9 systems at Atlanta, GA; Dallas/Fort Worth, TX; and Scott AFB, IL.

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1B02 Fiscal Year 1994 CIP: 62-21

Program Title: Runway Status Light System

Amount: $2,000,000 Location: 1

Basis for Request: Increases in runway incursion accidents such as in Detroit and Los Angeles which took 43 lives reinforce the requirement for automated monitoring and pilot alerts to prevent runway incursions. Boston's Logan International Airport consistently leads the nation in runway incursions caused by pilots entering the runway when it is unsafe.

Description of Problem: Runway incursions and surface errors continue to occur at congested airports, nowhere more so than Boston. Without some reduction in runway incursion events, operational changes will be needed which affect airport efficiency. Although ASDE-3 itself will improve safety, the controller must continuously monitor the radar to prevent runway incursions. There is no similar warning to pilots when the runway is "hot", meaning that another aircraft is on approach close to landing, on landing rollout, or taking off.

Description of Solution: Runway status lights provide safety benefits through alerting the pilot to unsafe conditions using airfield lighting. The runway status lights use the ASDE-3 as the surveillance sensor. Safety algorithms within the runway status light system provide a timely visual alert when the runway is in use. FY 1994 funding request of $2,000,000 is for installation of the lights trenching, cabling, and software upgrades to each taxiway/ runway intersection at Boston which will be placed in operation.

Benefits: Improve safety of aircraft operations on the ground by warning of potential runway incursions. This lighting system will provide the pilot more control over surface safety.

APPROPRIATION SUMMARY

	Location	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	1	2,000.0
Future Requirement	---	. a/
Total	1	$2,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Cabling, Installation of Lights	---	$1,600.0
2. Automation Equipment	---	400.0
Total	1	$2,000.0

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a/ Future requirements will be defined.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1803 Fiscal Year 1994 CIP: 62-20

Program Title: Terminal ATC Automation (TATCA)

Amount: $8,650,000 Location: Various

Basis for Request: The principal capacity constraint today is the arrival traffic management process whereby aircraft approaching from up to eight different directions are sequenced, merged, and spaced for landing. The TATCA Program will enhance en route and terminal efficiency through airspace and runway utilization by providing fuel efficient and conflict free controller advisories.

Description of Problem: The aircraft traffic management process is accomplished among various teams of controllers in en route centers, approach control facilities, and towers. Inefficiencies in the process result in idle time on the runways that prevent utilization of their full capacity. The consequence is air traffic delays which increase aircraft operating costs and inconvenience passengers.

Description of Solution: The Traffic Management Advisor (TMA) and the Final Approach Spacing Tool (FAST) are TATCA products being developed to help alleviate terminal traffic congestion and reduce delays. This is the first year of a multiyear program to equip selected major TRACON facilities and ARTCCs with TATCA equipment. Provide $8,650,000 in FY 1994 to begin limited deployment of the TMA in selected Centers.

This request would procure both the hardware and software, documentation, training, maintenance, and installation of Traffic Management Advisor (TMA) for 10 of 20 ARTCCs. TMA units will be configured to accommodate the runway configurations, procedures, and software configurations unique to each specific site.

Benefits: TATCA will increase capacity without negatively impacting safety through more efficient use of airspace and runways by increasing throughput under instrument meteorological conditions (IMC). Scheduling reliability will be improved and will better accommodate user-preferred flight paths, thereby improving fuel efficiency. While benefits vary from airport to airport, initial analyses indicate that TATCA could provide arrival traffic flow increases ranging from 15 to 40 percent during instrument flight conditions depending upon the runway configuration. These improvements at major airports could represent substantial cost savings to aircraft operators annually.

APPROPRIATION SUMMARY

	Location	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	10	8,650.0
Future Requirement	Various	126,350.0
Total	Various	$135,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
TMA:		
1. Hardware/Software Procurement	---	$7,000.0
2. Training	---	500.0
3. Installation	10	$1,150.0
Total	10	$8,650.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1D01 Fiscal Year 1994 CIP: 24-07

Program Title: Microwave Landing System (MLS)

Amount: $46,218,000 Location: Various

Basis for Request: The United States and the International Civil Aviation Organization (ICAO) have adopted the Microwave Landing System (MLS) as the standard precision landing system to replace the current Instrument Landing System (ILS).

Description of Problem: The current precision landing system provided in the National Airspace System (NAS) is the ILS. The ILS has been a reliable system for more than 40 years, but it is not capable of meeting many current and future aviation needs. The MLS is a replacement for ILS that will meet evolving aviation user needs and address specific operational and technical issues. The ICAO identified 38 operational requirements for precision landing systems. While MLS is able to satisfy all 38 requirements, ILS can fully satisfy only 12 requirements and partially meet only 11 more.

It is widely acknowledged that MLS is technically superior to ILS. To show that it was economically advantageous, Congress directed the FAA to complete an evaluation/demonstration of MLS benefits before proceeding with a full production CAT II/III MLS contract. A final report on the MLS Evaluation/Demonstration Program was submitted to Congress in April 1992.

Description of Solution: To realize the described benefits as quickly as possible, the FAA began contract procedures in 1990 for the development of a First Article CAT II/III MLS ground system. Incremental funding of $46,218,000 is requested in FY 1994 to continue the design, development and demonstration efforts of the MLS program. The amount of $29,290,000 is needed for the continuation of the contracts for the dual source design, development, fabrication, test, and evaluation of the CAT II/III First Article Test Systems. The amount of $4,342,000 is needed for CAT II/III development support contracts, for monitoring the efforts of the two development contractors. The amount of $3,019,000 is needed for the continuation of CAT I MLS installations, spares, training and demonstration efforts. The amount of $9,567,000 is needed to provide hardware and software engineering support for continued MLS/GPS receiver development and prototype/production; certification of MLS avionics; continued development of MLS Terminal Instrument Procedures (TERPS); and program office and ICAO support.

The requested funding is necessary to enable the U.S. to meet its international commitment and to realize the operational and economic benefits available from MLS.

MLS provides precision guidance to satisfy the full range of operational requirements, both civil and military, to all types of aircraft in all categories of landings. MLS, as compared to ILS, provides: more available channels for precision approaches; expanded operational flexibility; more accurate signal-in-space; and reduced susceptibility to a wide range of siting problems. These benefits will increase NAS capacity, eliminate existing problems with the current precision approach system, and improve safety. Delaying funding will delay MLS benefits until well beyond the year 2000 and would prevent the meeting of international commitments.

Benefits: Results from the MLS Evaluation/Demonstration Program indicated the following benefits can be achieved by implementing MLS:

- Relief from ILS frequency congestion and FM interference. Results from an MIT study confirm that ILS has reached the limits of its expansion capability in ten major metropolitan areas, due to congestion and FM radio frequency interference on the ILS frequency band. In the ten major areas, less than 50 percent of the required precision approaches for year 2000 could be satisfied by ILS. The MLS will satisfy all of the requirements, as its frequency band offers more channels than ILS and is not located adjacent to the FM band.

- Delay reduction. Simulations of the New York, Chicago, and San Francisco terminal areas conducted at NASA/Ames indicate that a significant reduction in airline delay can be achieved in areas with multiple airports, through the use of advanced terminal procedures made possible by MLS (e.g. curved approaches). Airline savings are expected to be $200-$300 million per year.

- Additional runways instrumented for precision approach. The ILS cannot be sited at some runways due to terrain considerations, frequency congestion problems, or other limitations. A detailed technical analysis by air traffic control experts shows the capability of MLS to solve many of these siting problems. As a result, CAT I MLS's have been installed at 2 sites not possible for ILS: runways at Chicago (Midway) and New York (JFK); and are scheduled for installation at 26 additional sites which include Andrews Air Force Base; Seattle (SEATAC) and Pullman-Moscow, WA; Anchorage, Unalaska (Dutch Harbor), Dillingham, and Unalakleet, Alaska; and Steamboat Springs, CO.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$255,200.0
FY 1993 Appropriated	---	45,000.0
FY 1994 Request	---	46,218.0
Future Requirement	---	390,200.0 a/
Total	Various	$736,618.0 a/

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Procure for Testing Cat II/III Microwave Landing Systems	Various	$46,218.0

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a/ Future funding for the Precision Landing Systems programs are under review and may be revised.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E01 Fiscal Year 1994 CIP: 56-55

Program Title: Independent Operational Test and Evaluation (IOT&E) Support

Amount: $4,250,000 Location: Various

Basis for Request: Operational test and evaluation is a requirement for all new system acquisitions or equipment to ensure all operational requirements are satisfied. Independent oversight of this function ensures adequate planning, tests designed to cover and measure all operational features, and results objectively reviewed and carefully considered.

Description of Problem: Prior to a production commitment, a developed system must be installed at a realistic test bed to demonstrate its technical and operational performance, including its interface with other system elements. DOT Order 4200.14C, Major Systems Acquisition Review and Approval, as implemented by FAA Order 1810.2, requires an independent assessment. Because additional independent testing is redundant, costly, and could cause extensive delays to system implementation, the concept of IOT&E oversight was developed. IOT&E oversight has been extended to include production commitment for other programs where an abbreviated acquisition process is being undertaken. If oversight is not performed, system effectiveness may be compromised and delay Capital Investment Plan objectives.

Description of Solution: Provide $4,250,000 to fund various contracts with private testing and evaluation firms. For each major system acquisition, the IOT&E testing will assess compliance with the system requirements statement. Issues will be examined carefully and identified in an operational baseline. The extent to which automation increases safety and effectiveness depends on how well all of these considerations are integrated in the system. From the results of the IOT&E, the operational readiness of the system will be assessed and reported.

Benefits: The IOT&E function will ensure that operational requirements are met, ensure that systems are ready for implementation, and minimize errors in field testing.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$10,757.0
FY 1993 Appropriated	---	5,900.0
FY 1994 Request	---	4,250.0
Future Requirement	---	. a/
Total	Various	$20,907.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Analysis of Major Systems	Various	$4,250.0

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a/ Continuing requirement to provide Independent Operational Test and Evaluation Support to services at approximately $6,000,000 to $8,000,000 per year.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E02   Fiscal Year 1994   CIP: 56-19

Program Title: FAA Technical Center Facility - Technical Building Lease

Amount: $5,290,000   Location: 1

Basis for Request: The objective of the FAA Technical Center Improvement Program is to modernize and consolidate facilities and buildings, to reduce costs, and to increase operating efficiency. The improvement program will provide modern facilities to conduct the expanded test and evaluation functions assigned to the Technical Center which are needed to accomplish the Capital Investment Plan.

Description of Problem: In a formal agreement between the Federal Aviation Administration and the Atlantic County Improvement Authority, a 20-year lease/purchase agreement was entered into for building the Center's new Technical Building. The building was completed in 1980 and the annual cost of the lease is $5,290,000.

Description of Solution: Provide $5,290,000 for the Technical Building lease for FY 1994.

Benefits: The Technical Building replaced 36 obsolete and widely dispersed World War II vintage temporary buildings. The new Technical Building provides improved efficiency, lower operating costs, and expanded facilities to meet future research requirements.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$61,082.0
FY 1993 Appropriated	---	5,290.0
FY 1994 Request	---	5,290.0
Future Requirements	---	. a/
Total	1 b/	$71,662.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Lease Payment	1	$5,290.0

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a/ Lease agreement provides for 20 year lease 1982-2001.

b/ All work/services to be performed at Federal Aviation Administration Technical Center (ACT).

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E03 Fiscal Year 1994 CIP: 56-19

Program Title: Utility Plant Modifications

Amount: $1,660,000 Location: 1

Basis for Request: The FAA owns and operates the Test and Evaluation facilities, Research and Development (R&D) facilities, administrative and storage facilities, as well as numerous project test sites. To support these facilities and test sites, the Center must keep in operating order the Central Utilities Plant, electrical systems and the building infrastructure.

Description of Problem: The Technical Building's fire protection system is outdated and requires refurbishment. Additional electric circuitry is required in the Technical Building to support the influx of ADP equipment. Portions of the primary electrical distribution system are in poor condition and beyond their useful lives. Portions of the electrical, mechanical and architectural systems in Building 270 require major upgrade.

Description of Solution: Provide $1,660,000 to modernize the Technical Building's fire protection system, upgrade existing electrical service, provide additional secondary electrical circuits, and rehabilitate portions of Building 270.

Benefits: The modifications will ensure the controlled reliable operation of the Technical Center by replacing aged mechanical and electrical equipment before serious problems occur. The work will also update certain facility support systems.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 7,000.0
FY 1993 Appropriated	---	1,450.0
FY 1994 Request	---	1,660.0
Future Requirement	---	. a/
Total	1 b/	$10,110.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Upgrade Existing Electrical Service	---	$ 450.0
2. Essential Electrical, Mechanical and Architectural Improvements - Building 270	---	420.0
3. Fire Protection System Modernization - Technical Building	---	450.0
4. Additional Electric Circuits - Technical Building	---	340.0
Total	Various	$1,660.0

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a/ Continuing requirement to be validated on a year-to-year basis.

b/ All work/services to be performed at Federal Aviation Administration Technical Center (ACT).

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E04 Fiscal Year 1994 CIP: 56-17

Program Title: NAS Modernization of System Support Laboratory

Amount: $3,500,000 Location: 1

Basis for Request: To establish laboratory environments required to support the testing, integration, and implementation activities associated with Capital Investment Plan (CIP) deliverables scheduled for the FAA Technical Center.

Description of Problem: The CIP identifies delivery of various computer systems and common console displays as part of the NAS Modernization Program. Accommodations for these systems require extensive modification to existing laboratory environment space, fiber optic cabling, as well as expansion of the current System Support Laboratory.

Description of Solution: To accommodate new systems and equipment, the Technical Center must redesign and reconstruct the laboratory environment. A Technical Center Transition Plan identifies in detail the multitude of site preparation activities currently planned for the year 1994. The new systems expected to be implemented, integrated, and interfaced into the System Support Laboratory beginning in the 1994 timeframe include:

En Route Mode-S
Direct Access Radar Channel (DARC) #2
Display Channel Complex Rehost (DCCR)
Automated Radar Terminal System (ARTS) III A

Accommodations for these systems require extensive modification to existing laboratory environment space. In addition, AAS equipment will have been moved into the new Laboratory Expansion Building by this timeframe. The areas vacated in the existing laboratory will have to be refurbished in order to accommodate the relocation of existing and future systems. The accomplishment of the NAS Laboratory modernization will ensure that CIP systems and equipment can be successfully implemented, tested, and integrated into the NAS.

Benefits: The establishment of the latest state-of-the-art laboratory environment to support the implementation, testing, and integration of new NAS systems prior to their delivery to the various FAA field sites.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$18,053.1
FY 1993 Appropriated	---	0.0
FY 1994 Request	1	3,500.0
Future Requirements	---	. a/
Total	1	$21,553.1

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Reconfigure/Relocate System Support Lab and Interface New Systems Into Laboratory Environment	1	$3,500.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E05 Fiscal Year 1994 CIP: 56-17

Program Title: Technical Center Facilities

Amount: $9,000,000 Location: 1

Basis for Request: To provide for hardware and software maintenance and operations costs; software licensing fees; and other costs associated with operating the Technical Center's multi-user facilities which are engaged in the support of F&E projects.

Description of Problem: The Technical Center operates a large laboratory complex where development and operational test and evaluation (OT&E) activities are conducted supporting Capital Investment Plan (CIP) programs. These laboratories provide around the clock support of operations for all en route and terminal air traffic control (ATC) facilities throughout the nation. Within this complex resides the air traffic control simulation facilities where dynamic simulations are conducted in support of CIP programs. These facilities are maintained and supported in order to meet mandated objectives associated with the CIP, and the day-to-day operation of the ATC system. The costs for operating and maintaining the laboratory are assessed across the R,E&D, Operations, and F&E appropriations based on project utilization of these shared facilities.

Without funding, the Technical Center will be unable to support the development and implementation of various elements of the CIP. These facilities are instrumental in the implementation of the majority of the CIP projects with special emphasis on the advanced automation system (AAS) which requires extensive operational tests and evaluation (OT&E). The Technical Center has been tasked with the OT&E of all segments of the AAS including the initial sector suites systems (ISSS) and its supporting equipment such as the voice switching and control system (VSCS). These facilities also support hardware and software development programs and ATC simulation scenario development which are essential elements in the ISSS implementation process.

Description of Solution: Provide $9,000,000 for the level of support required to finance the F&E project utilization share. This will ensure that the laboratory complex is adequately maintained and funded.

Benefits: This support is necessary to the successful development and implementation of various elements of the CIP. In addition, the ATC field facilities support mission will continue throughout the transition from today's system to the full implementation of AAS.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 7,700.0
FY 1993 Appropriated	---	9,000.0
FY 1994 Request	1	9,000.0
Future Requirement	---	. a/
Total	1	$25,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Laboratory Operations and Maintenance	1	$9,000.0

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a/ The project is ongoing, funding requirements determined annually.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E06 Fiscal Year 1994 CIP: 56-18

Program Title: Technical Center Research and Development Laboratory - Establish

Amount: $3,500,000 Location: 1

Basis for Request: The new technologies scheduled to support the National Airspace System (NAS) involve advanced air traffic control concepts, procedures, and new maintenance techniques and technologies, which cannot be adequately designed, developed, and/or evaluated without a current state-of-the-art laboratory facility.

Description of Problem: The development and investigation of new concepts of air traffic control and airways facility maintenance require a flexible, current, state-of-the art simulation/prototyping laboratory. The existing laboratory facilities were inherently difficult to reconfigure, hard to reprogram and did not possess the capacity to study the validity, operational effectiveness, and impact of advanced technologies on the controller/maintenance technician.

Description of Solution: The requested $3,500,000 will be used for the procurement and installation of hardware and software necessary to support the Human Factors Research Laboratory. These funds will also support the integration of the laboratory with other laboratories and facilities.

Benefits: The Human Factors Research Laboratory will be an easily reconfigurable facility with rapid prototyping capability, and be fully integrated with the existing simulation laboratories. Its primary focus will be the measurement of human performance and support research per "The National Plan for Aviation Human Factors" in areas such as the flightdeck, air traffic control, flightdeck/ATC integration, and airways facilities maintenance.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$5,905.2
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	3,500.0
Future Requirement	---	. a/
Total	1 b/	$9,405.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Facility Development	1	$3,500.0

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a/ Future requirements will be validated on a year-to-year basis.

b/ All work/services to be performed at the FAA Technical Center (ATC).

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E07 Fiscal Year 1994 CIP: 56-30

Program Title: CAMI Infrastructure - Modernization

Amount: $1,400,000 Location: 1

Basis for Request: Current infrastructure components of the Civil Aeromedical Institute (CAMI) have become dangerous, obsolete, or unusable jeopardizing CAMI's ability to meet its mission.

Description of Problem: Because of old, dangerous, or unusable equipment CAMI is unable to meet its mission of performing testing and development work to evaluate human function and life protective equipment in the civil aviation environment. Three facilities within CAMI, the hypobaric chamber, the Aircraft Cabin Evacuation Facility (ACEF), and the highbay crashworthiness facility, are in need of renovation or replacement in order to restore the testing capabilities needed to support programs within Aviation Medicine, Aircraft Certification, Flight Standards, Rulemaking, and Accident Investigation.

For FY 1994 a currently non-functional hypobaric chamber is scheduled for replacement. The current chamber, when it was functional, used a possibly carcinogenic substance (methylene chloride), and was very difficult to control. The hypobaric chamber must also comply with Department of Transportation regulations adopted in August 1991 concerning protection of human test subjects.

Description of Solution: Provide first year funding of $1,400,000 for the modernization of the CAMI infrastructure. These funds will be used to dismantle old structures in the CAMI highbay and then continue the replacement of the current non-functional hypobaric chamber.

Benefits: Replacement of the non-functional hypobaric chamber will restore to the FAA a needed testing capability, and provide the capability needed to support programs in the Office of Aviation Medicine, Office of Flight Standards, Office of Rulemaking, and the Aircraft Certification Service.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	1	1,400.0
Future Requirements	---	3,500.0
Total	1	$4,900.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Dismantle Old CAMI Structures and Replace Hypobaric Chamber	1	$1,400.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 1E08 Fiscal Year 1994 CIP: 56-16

Program Title: Precision Automated Tracking System (PATS)

Amount: $2,100,000 Location: 1

Basis for Request: The FAA Technical Center requires a highly accurate, state of the art mobile laser tracking facility to provide aircraft positioning data in support of GPS, MODE-S, ILS, MLS, TCAS and other flight test programs requiring qualification, operational tests, and evaluation.

Description of Problem: Many aspects of these projects require an extremely high level of accuracy that can only be achieved by a laser based tracking system. The Technical Center currently is using a Precision Automated Tracking System (PATS), that was manufactured by GTE Sylvania in 1975. This is the oldest such system still in use. The system computer and tape decks are obsolete and parts are no longer available from the manufacturer. GTE Sylvania has discontinued the production of the tracking systems and will not provide further engineering or parts support. The end result is that the system is deteriorating rapidly and is no longer maintainable. System degradation to the point of unserviceability is projected by FY 1994.

Description of Solution: Provide $2,100,000 for the procurement of a "bare-bones" replacement Precision Automated Tracking System. This system will be able to track basic airborne targets. Future enhancements will be considered which include ground to air data telemetry, onsite data plotting and display, remote designate capability from an acquisition device or other tracking system, additional real-time data processing capabilities and the support vehicle for off-base operations.

Benefits: The capability to continue to support the flight test programs at the FAA Technical Center and in the field.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	2,100.0
Future Requirement	---	1,400.0
Total	1 a/	$3,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Task	Location/ Quantity	Estimated Cost ($000)
PATS Procurement	1	$2,100.0

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a/ All work/services to be performed at the Federal Aviation Administration Technical Center (ACT).

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A01 Fiscal Year 1994 CIP: 24-15

Program Title: Long Range Radar (LRR) Program - Replace

Amount: $20,417,000 Locations: Various

Basis for Request: The en route air traffic control system relies on long range radar (LRR) systems for aircraft movement data to ensure safe operations and proper aircraft separation. The long range radars also provide for the defense of U.S. borders and drug interdiction. The LRR Replacement Program is a multiyear program funded 50/50 by the FAA and the Air Force as stated in an Interagency Agreement signed in 1984. The agreement provides a way to replace obsolete FAA air route surveillance radar models (ARSR-1/2) and Air Force long range radar FPS-20/60 series at 39 operational joint-use facilities with the Air Route Surveillance Radar, Model 4 (ARSR-4). The program also provides one ARSR-4 at a training and field support facility. The field support facility will include computer capability to analyze radar performance and to provide software support and enhancements. A total of 40 ARSR-4 systems will be procured, installed, and commissioned.

Description of Problem: The current ARSR-1/2 and military primary radars (FPS-20/60) at joint-use sites are 1950 vintage vacuum-tube equipment. These radars are difficult and expensive to support logistically, and they do not provide state-of-the-art performance. In addition, eight of the existing locations are at sites that do not provide optimal air traffic control operational surveillance coverage.

Description of Solution: Provide $20,417,000 to fund FAA's portion of the LRR Replacement Program in FY 1994. The funds will be used to provide regional site preparation, component level training, shakedown testing, acceptance testing, logistics support, and engineering support for systems purchased with previous funding.

Benefits: The jointly-developed program to replace JSS radars with new three-dimensional radars will significantly reduce maintenance workload and logistics costs, resolve problems relating to non-availability of spare parts required by the older radars, extend coverage from 200 to 250 nautical miles, and improve detection in air traffic clutter.

In addition to expanding the joint use of military radars to extend coverage, the LRR program provides and processes beacon data which eliminates the need for a common digitizer (CD-2). The ARSR-4 is also compatible with MODE-S and has an approved interface with that system.

The contract for the multiyear long range radar replacement program was awarded in July 1988. The first production unit to the FAA is scheduled for delivery in the second quarter of FY 1993. Previous funding received provided for site surveys, site selection, engineering pre-production activities, and the procurement of the long range radar (LRR) systems.

APPROPRIATION SUMMARY

	Locations ARSR Repl	Amount($000)
Appropriated (FY 1982-1992)	34	$256,641.0
FY 1993 Appropriated	6	73,000.0
FY 1994 Request	---	20,417.0
Future Requirement	---	33,100.0
Total	40	$383,158.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Support and Services	Various	$20,417.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A02 Fiscal Year 1994 CIP: 24-15

Program Title: ARSR-3 Leap Frog Program

Base	: $ 0	Locations: 2
Investment	: 7,500,000	
Total Amount:	$7,500,000	

Basis for Request: Under the FAA/Air Force Radar Replacement (FAAR) Program, 10 ARSR-3 radars will be replaced by ARSR-4 three dimensional radars at joint surveillance system (JSS) sites. The replaced ARSR-3 radars, including the towers, will then be used to replace older radars at other sites. This program provides for a further upgrade of the ARSR system with attendant lower maintenance costs.

Description of Problem: The removal and relocation of the ARSR-3 assets is not funded under the joint FAA/USAF FAAR program. Costs include training and site preparation at the new ARSR-3 sites plus overhaul/refurbishment and reinstallation of the radars and towers. The ARSR-3 radar will be reinstalled with only minimal service interruptions, i.e., an in-service replacement is planned. Commissioning flight checks and shakedown testing must also be funded.

Description of Solution: Provide $7,500,000 in FY 1994 for removal and relocation of 2 ARSR-3 radars. An additional $22,083,000 will be requested in the future to fund the 6 remaining radar sites.

Benefits: The ARSR-3 leapfrog provides a minimal cost upgrade for 10 ARSR sites. Associated with this upgrade is a reduction of maintenance and replacement part costs.

APPROPRIATION SUMMARY

	Locations ARSR Replace	Amount($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	2	5,000.0
FY 1994 Request	2	7,500.0
Future Requirement	6	22,083.0
Total	10	$34,583.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Relocation/Services	2	$7,500.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A03 Fiscal Year 1994 CIP: 25-03; 45-05; 45-06

Program Title: Radio Communication Link Network

Amount: $15,500,000 Location: Various

Basis for Request: The FAA is responsible for operating National airspace System (NAS) air route traffic control centers (ARTCCs) and other en route and terminal support facilities to provide air traffic control (ATC) services as established by the Federal Aviation Act of 1958. To accomplish this responsibility, the FAA must provide communications services to support critical, essential, and routine operations. The radio communications link (RCL) network provides technically responsive, cost-effective, and timely interfacility transmission services as a major element of the overall NAS communications services requirement.

The RCL Network consists of three parts: the RCL backbone network, phase I and II of the low density radio communications link (LDRCL), and phase I and II of routing and circuit restoral (RCR). The RCL backbone network establishes independent ARTCC to ARTCC transmission links, LDRCL provides systems for low transmission capacity requirements, and RCR provides automated routing and circuit restoral functions. The RCL backbone network, LDRCL phase I, and RCR phase I are being accomplished under the radar microwave link (RML) replacement/expansion program; LDRCL phase II is being completed under the LDRCL expansion/reconfiguration program; and RCR phase II will be implemented under the RCR expansion/reconfiguration program. The RCL backbone network was completed in FY 1993.

Description of Problem: The existing mix of leased service and FAA owned transmission facilities does not provide the availability, performance, or capability necessary to meet NAS operational requirements. Furthermore, the existing RML equipment not yet replaced is outdated, labor intensive, and increasingly difficult/expensive to support logistically. This, combined with the fact that existing leased services do not provide the network diversity required to meet the critical NAS service availability requirements, points to a need for new systems to supplement the existing interfacility communications system architecture.

Description of Solution: Provide $1,000,000 to continue the purchase and installation of Phase I RCR equipment on the backbone network. RCR equipment provides automated digital switching for rapid rerouting and restoral of operational circuits in the event of an interruption or failure. Provide $11,500,000 to continue the procurement of phase I LDRCL systems needed to replace facilities with obsolete, outdated RML equipment. Provide $3,000,000 to continue procurement of Phase II LDRCL systems. This equipment will enable the FAA to reduce its reliance on leased services, improve communications reliability and availability, and provide the network diversity needed for essential air traffic communications.

Benefits: These systems will provide significant economic and operational benefits. The initial RCL Network will result in an estimated $50,000,000 annual savings in leased communications expenditures when used in conjunction with the LDRCL and RCR systems. Additional LDRCL and RCR capabilities will amortize the equipment in two years or less. Operationally, reliable critical voice and data transmission will be achieved, a high level of system availability will be provided, and automatic service restoral in cases of interrupted or failed transmission will be possible, making RCL Network a key element in the FAA's ongoing effort to improve the efficiency and safety of the NAS.

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(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	908	$262,830.0
FY 1993 Appropriated	---	15,000.0
FY 1994 Request	---	15,500.0
Future Requirement	---	. a/
Total	908	$293,330.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment/ Services for:		
LDRCL	Various	$14,500.0
RCR	Various	1,000.0
Total	Various	$15,500.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A04 Fiscal Year 1994 CIP: 24-16

Program Title: Next Generation Weather Radar (NEXRAD)

Base :	$36,600,000	Locations: 11
Investment :	17,000,000	
Total Amount:	$53,600,000	

Basis for Request: The Next Generation Weather Radar program will establish an aviation weather radar network that provides accurate precipitation reflectivity, wind velocity, and turbulence indication data. Doppler weather radar systems will be deployed in the continental U.S. and overseas. Software algorithms will also be furnished to take advantage of the improved radar presentation of weather data.

Description of Problem: Present systems can only detect and display the location and intensity of precipitation, but do not provide any altitude information. The presence, location, and altitude of such hazardous weather phenomena as thunderstorms, downbursts, windshear, and hail are not adequately determined.

Description of Solution: Provide $53,600,000 to continue the tri-agency procurement of the NEXRAD system. The funding will cover FAA's share of NEXRAD costs through the Joint Systems Program Office and will provide for equipment, site acquisition deployment, and integrated logistics support. Funding will also cover the FY 1993 Congressional direction to accelerate deliveries in Hawaii and Alaska as well as acquire an additional NEXRAD for Hawaii. In addition, funding will cover continued technical and engineering support and regions/center implementation costs. These radars will provide en route weather detection needs for the FAA, National Weather Service, and the U.S. Air Force.

Benefits: The major benefits from NEXRAD deployment are increased aviation safety from improved hazardous weather detection, reduced weather related delays due to improved forecasts, and improved aviation fuel consumption due to improved flight planning capability.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	87	$149,646.7
FY 1993 Appropriated	18	15,000.0
FY 1994 Request	11	53,600.0
Future Requirement	---	70,400.0
Total	116 a/	$288,646.7

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. JSPO/NEXRAD Systems	10	$41,500.0
2. FAA NEXRAD System	1	1,800.0
3. Technical/Engineering Support	---	1,500.0
4. Regions/Center	---	8,800.0
Total	11	$53,600.0

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a/ A total of 115 shared facilities (FAA's dollar share is 20 percent) are being acquired under an incrementally funded contract administered by the Department of Commerce, NOAA. One FAA NEXRAD for the southern flank of the big island of Hawaii in accordance with FY 1993 congressional direction.

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A05 | Fiscal Year 1994 | CIP: 44-39; 44-40; 44-42; 44-43; 44-45; 46-16; 56-41

Program Title: Air Traffic Control En Route Radar Facilities Improvements

Amount: $16,398,000 | Locations: Various

Basis for Request: The en route surveillance radar systems provide the means for determining aircraft positions in the National Airspace System (NAS).

Description of Problem: The en route surveillance and beacon facilities not being replaced by the Long Range Radar program require improvements and/or modifications to correct existing deficiencies and install state-of-the-art equipment. In addition, a continuing effort is required to improve long range radar operational performance and reliability and to resolve problems unique to certain radar sites and/or common to the entire radar system.

Description of Solution: The FY 1994 funding request will continue a multiyear program to replace radomes at en route facilities to accommodate larger Mode-S en route antennas; relocate air traffic control beacon interrogator (ATCBI) equipment made available by Mode-S commissionings; and provide an enhanced radar analysis tool.

Benefits: The planned modifications will improve safety, reduce operating costs, and provide greater efficiency in en route air traffic control and facility maintenance operations.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$112,626.0
FY 1993 Appropriated	---	17,000.0
FY 1994 Request	---	16,398.0
Future Requirement	---	, a/
Total	Various	$146,024.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Replace Radomes & Modify Towers	---	$ 7,300.0
2. ATCRBS Relocation	---	6,100.0
3. Enhanced Radar Analysis Tool	---	2,100.0
4. En Route Radar In-Service Engineering	---	898.0
Total	Various	$16,398.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A06 Fiscal Year 1994 CIP: 21-12

Program Title: Advanced Automation System (AAS)

Amount: $31,100,000

See Narrative Justification for Budget Item No: 1A02

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A07 Fiscal Year 1994 CIP: 41-21

Program Title: En Route Software Development and Integration Support

Amount: $10,600,000 Location: Various

Basis for Request: Contractor support is required for the analysis, coding, testing, integration, and implementation of NAS software packages to correct operational problems and provide system enhancements. FAA will require contractor support at the FAA Technical Center to update, integrate, and implement software delivered with present and future Capital Investment Plan (CIP) projects.

Description of Problem: FAA requirements for software services exceed in-house capabilities. After new systems and new software become operational, problems arise that must be corrected, and several CIP projects will deliver software packages requiring integration and implementation into the NAS system.

Description of Solution: Provide $10,600,000 for contract support for the enhancement and implementation of NAS software. The software support will correct the deficiencies and add enhancements to the NAS as well as implement and integrate functional software developed by several contractors as part of other NAS projects. Specific items that will be funded by the FY 1994 request include: expanding the size of the Host Computer Tables used in processing flight data; developing and integrating, center radar ARTS presentation (CENRAP) into the A4e1.2 release for the en route Host software; integrating and deploying the A4e1.3 version of the Host software release to support integration of the Host into the initial sector suite system (ISSS).

Benefits: The benefits include greater safety and controller productivity. Contractor support will result in fewer delays in the operational release of many national air traffic control operational software improvements and ensure that the software will continue to meet current operational requirements.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$45,221.9
FY 1993 Appropriated	---	10,000.0
FY 1994 Request	---	10,600.0
Future Requirement	---	, a/
Total	Various	$65,821.9

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Software Development, Documentation, and Implementation	Various	$10,600.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A08 Fiscal Year 1994 CIP: 23-02; 43-02

Program Title: Central Weather Processor (CWP)

Amount: $1,400,000 Location: 0

Basis for Request: The meteorologist weather processor II (MWP II) portion of the Central Weather Processor is required to provide traffic management specialists with accurate, reliable, information on current and forecast weather conditions to accomplish their mission of safe and efficient regulation of aircraft within the NAS. Information is required regarding terminal area weather in order to anticipate the need for metering and destination changes, and in-flight severe weather in order to select jet routes and flight levels.

Description of Problem: Accurate weather information is a critical component to provide safe and efficient operation of the NAS. MWP I furnished air route traffic control center (ARTCC) center weather service unit (CWSU) meteorologists with initial weather radar and graphics data in order to provide controllers with timely weather advisories for safe and efficient air traffic control. Certain deficiencies in the present system have been identified, such as interfacility access to radar mosaics, interfaces with advanced weather sensors, and plotting and processing of gridded upper air winds and temperature forecast data. Further capabilities are required to correct these deficiencies.

Description of Solution: MWP II will be a follow-on leased system to the present MWP I. MWP II will improve the overall MWP performance and availability, and will add new capabilities to address the deficiencies of MWP I.

In FY 1994, $1,400,000 is required to fund support and engineering costs associated with solicitation documentation preparation and proposal evaluation.

Benefits: Funding of these activities will provide for a smooth transition from MWP I to MWP II, with no loss in service to Center and Central Flow Weather Service Unit meteorologists. MWP II will provide timely weather data acquisition and dissemination capability for meteorologists to issue weather advisories and warnings to ensure safe air traffic control.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	23	$77,236.0
FY 1993 Appropriated	---	4,000.0
FY 1994 Request	---	1,400.0
Future Requirement	48	59,600.0
Total	71	$142,236.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Support/Engineering	Various	1,400.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A09 Fiscal Year 1994 CIP: 23-05; 63-05; 65-22

Program Title: Aeronautical Data Link (ADL)

Base	:	$19,900,000
Investment	:	2,500,000
Total Amount:		$22,400,000

See Narrative Justification for Budget Item No: 1A04

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A10 Fiscal Year 1994 CIP: 46-16

Program Title: En Route Automation Equipment

Amount: $4,000,000 Location: Various

Basis for Request: En route automation hardware and software upgrades are needed to increase system reliability and enhance air route traffic control center (ARTCC) operations until replacement by the advanced automation system (AAS).

Description of Problem: The Display Channel is the primary processor for the planned view displays (PVDs) and suffers significant downtime. Components are not available for standard replacements and must be "reverse" engineered in order to perform repairs.

The Direct Access Radar Channel (DARC) system is an alternate route for the processing of radar data displayed on a PVD and is required in the event that either the host or the display channel become non-operational. Therefore, the DARC system requires companion upgrades for upgrades installed in the Host system in order to maintain its integrity as a full safety backup to the Host system. In addition, hardware components of the DARC system require upgrades. These efforts include circuit board upgrades, replacement of DARC disc drives with a higher density version, and the addition of a display.

These systems must continue to be upgraded until the introduction of the Advanced Automation System.

Description of Solution: Provide $4,000,000 to upgrade software and hardware capabilities for en route display channels and the DARC system.

Benefits: Software upgrades to the DARC will allow for a fully functional back up to the host or display channel in the event either a host or display channel of a system fails. New equipment will improve reliability and enhance the system capability.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$14,718.2
FY 1993 Appropriated	---	4,000.0
FY 1994 Request	---	4,000.0
Future Requirement	---	14,400.0
Total	Various	$37,118.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Software Upgrades and Replacement Components for En Route Display Channels	Various	$4,000.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A11 Fiscal Year 1994 CIP: 61-23

Program Title: Oceanic Automation System (formerly called Oceanic System Development and Support)

Base :	$25,282,000	Locations: 3
Investment :	1,718,000	
Total Amount:	$27,000,000	

Basis for Request: FAA is responsible for providing air traffic services to all aircraft flying in large areas of the Pacific and Atlantic. Oceanic air traffic growth is expected to continue at a higher growth rate than domestic air traffic, primarily in the highest density areas. Meeting this demand while maintaining the existing level of safety will require a highly coordinated program of interdependent, evolutionary hardware and software changes to the existing platforms which form the basis of the oceanic automation system (OAS) program. In addition, an OAS must be procured for the Alaska ARTCC.

Description of Problem: To maximize air traffic throughput in high density oceanic areas, such as in the North Atlantic Track (NAT) area and the Continental United States to Hawaii corridor, track systems are deployed. However, due to lack of timely surveillance data, communications delays, and high probability of undetected flight blunders, it has been necessary to retain large vertical, lateral, and longitudinal separation standards to ensure the safe separation of aircraft in oceanic airspace. These large separation standards reduce the capacity of preferred routes and preclude many aircraft from operating at altitudes where winds are favorable and where fuel efficiency can be maximized. In addition, the indirect and often unreliable High Frequency communication system with infrequent position reports, often limits the availability of the preferred routes and altitudes requested by pilots.

Existing oceanic automation subsystems cannot serve as an automation platform for the integration of new functionality without initial enhancements of hardware and software to rectify known computer/human interface limitations. Integration of necessary functionalities such as data link, automatic dependent surveillance, and the global positioning system derived aircraft position data will impose a further need to upgrade existing hardware and software.

Description of Solution: Provide $27,000,000 in FY 1994 for the procurement and installation of the OAS in Alaska; provide on-line data interface to other air traffic control centers; and continue to develop software upgrades to provide OAS workstations and evolve to common consoles.

Benefits: Recent international developments and growth in oceanic air operations make it essential for the FAA to evolve to a globally compatible OAS that will enable safe and efficient handling of traffic that continues to increase. Available technology makes it possible to provide greatly improved navigation, communication, surveillance, and automation services to the oceanic air traffic control system. The FAA will consolidate all oceanic programs in process which will focus on a viable oceanic ATC system. Incorporation of these efforts will enable the FAA to reduce the oceanic separation standards, provide more fuel and time efficient routes to the oceanic users and handle the anticipated growth in traffic. The anticipated benefits outweigh the estimated costs by a ratio greater than 3 to 1.

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APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 500.0
FY 1993 Appropriated	---	16,000.0
FY 1994 Request	3	27,000.0
Future Requirement	---	124,100.0
Total	Various	$167,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	3	$27,000.0

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(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A12 Fiscal Year 1994 CIP: 26-09; 36-20
46-09; 46-16
56-60

Program Title: Air Route Traffic Control Center (ARTCC) Improvement/Plant Modernization/Space Expansion

Amount: $98,385,000 Location: Various

Basis for Request: The ARTCC's in the National Airspace System (NAS) provide en route separation and safe movement of aircraft. Upgrading the centers' plant and equipment, as well as making environmental and security improvements, is necessary periodically to keep pace with the increased use of national airspace. Additionally, ARTCC expansion is required to provide operational support space for functions relocated or displaced by ARTCC expansion for the initial sector suite system.

Description of Problem: Current power systems, heating, ventilating and air conditioning (HVAC) systems and architectural finishes (for example, ceilings, walls, exterior siding) were installed in the late 1950's and early 1960's. The expected life of these items has been surpassed and this is directly responsible for inefficiencies and inadequacies in these facilities. Compounding the problem is a three-fold increase in power demand caused by the new NAS systems, particularly the Advanced Automation System (AAS). To maintain the current schedule and support the transition to the new systems, the current facilities will require substantial architectural renovations and major upgrade and expansion to the power and HVAC systems. This program also includes ongoing structural and support system upgrades for equipment that has surpassed its 20 year life expectancy. Items to be replaced include chillers, engine generators and associated radiators, exterior siding, roofing, water/sewer lines, and kitchen equipment. Parking lot expansions, loading dock enclosures, and implementing integrated security management systems (ISMS) are required to support the increase in personnel and operations at each ARTCC. Without these improvements the facilities cannot continue to accommodate and support the new National Airspace System (NAS) equipment, nor provide adequate physical security.

In addition to the need to improve and modernize the ARTCC plant, there is now an operational space shortfall at all ARTCC's. This shortfall has led to the conversion of conference rooms to office space, the inability of facilities to support existing and new programs, and the placement of offices in halls and operational space. As new programs in the NAS requiring additional space are implemented, the situation only worsens. There is an effort in progress to identify and meet interim needs pending completion of this project. This interim cost will increase if there is a delay in completion of the operational support wing.

Description of Solution: Provide $68,300,000 to continue a scheduled funding program of facility modernization at the ARTCC's. The installation of new NAS equipment is strictly dependent on preparation of facilities as planned. The plant improvements in FY 1994 focus on renovating space (major removal of asbestos) and replacing/expanding the HVAC, power systems, and other NAS subsystem installations.

Provide $25,000,000 to construct a 31,000 square foot expansion at three ARTCC's. Additional funding will be requested in future budgets to complete the effort at the remaining locations. $5,000,000 is requested for ISMS system site preparation, hardware, engineering, labor, and installation costs. Also $85,000 is requested for regional projects.

Benefits: This is a collection of improvement projects required to keep the NAS facilities efficient and up-to-date, and prepare to transition to area control facilities. These projects correct site specific problems or deficiencies, expand existing power and HVAC systems, and provide a more secure infrastructure. The additional space will relieve the existing

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overcrowded conditions, permit the facilities to fulfill their mission and support existing and new programs, and also permit the establishment of a work environment which is conducive to good employee morale and human relations.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$182,200.0
FY 1993 Appropriated	---	71,000.0
FY 1994 Request	---	98,385.0
Future Requirement	---	643,700.0
Total	Various	$995,285.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Task	Location/ Quantity	Estimated Cost ($000)
1. Modernization, Upgrade and Sustain	Various	$ 67,800.0
2. Operational Support Space Design and Construct Operational Support Space for:		
a. A&E Support/Site Adaptation	---	4,500.0
b. Atlanta	1	7,000.0
c. Chicago	1	7,000.0
d. Fort Worth	1	7,000.0
3. Integrated Security Management System	---	5,000.0
4. Regional Projects	Various	85.0
Total	Various	$98,385.0

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(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A13 Fiscal Year 1994 CIP: 25-07; 35-07

Program Title: National Airspace Data Interchange Network (NADIN) Enhancement II - Provide

Amount: $8,500,000 Locations: Various

Basis for Request: NADIN II will provide the FAA with a state-of-the-art packet switched network (PSN). This network will provide critical interfacility communications needed to support efficient NAS operations and ensure air safety. This will be achieved through distributed network architecture, high system reliability, increased throughput capacity, automatic alternate routing, switching control, and enhanced service availability. The community of host computer systems currently under development within the capital investment plan (CIP) cannot function as a nationwide entity without the network communications service that NADIN II will provide.

Description of Problem: Due to programmatic cost growth resulting from contractor delays, the program has been redirected. FY 1994 funds are required to complete the implementation of a commercial off-the-shelf (COTS) network, support contract redirection requirements and complete implementation of the gateway Build 2.

Description of Solution: Provide requested $8,500,000 in FY 1994 to complete the installation of gateway Build 2, procure spares for the COTS network and provide project support.

Benefits: NADIN II offers significant economic and operational benefits. NADIN PSN technology maximizes savings through the sharing of network resources. A comparable network of dedicated circuits would require over 30,000 leased lines. Operationally, NADIN II will provide a reliable and efficient network for the interchange of interfacility communications data.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	17	$47,195.3
FY 1993 Appropriated	11	7,600.0
FY 1994 Request	---	8,500.0
Future Requirement	---	3,800.0
Total	28	$67,095.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Service	Various	$8,500.0

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(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A14 Fiscal Year 1994 CIP: 21-11

Program Title: Voice Switching and Control System (VSCS)

Base	:	$151,000,000
Investment	:	20,000,000
Total Amount:		$171,000,000

See Narrative Justification for Budget Item No: 1A05

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(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A15 Fiscal Year 1994 CIP: 34-23

Program Title: Remote Communication Facilities (RCFs) Expansion

Amount: $10,000,000 Location: Various

Basis for Request: In order to meet air traffic operational needs for air/ground communications, it is essential to expand existing RCFs including remote center air/ground communications facilities (RCAGs), remote communications outlets (RCOs), and remote transmitter receivers (RTRs) by adding air/ground communication frequencies and relocating owned/leased facilities for proper communication coverage. This project will provide a vehicle for facilities to meet specific operational requirements based upon resectorization and traffic demands instead of limiting refinements of the system due to present radio coverage constraints.

Description of Problem: In several instances, radio communications between pilots and air traffic controllers have been impaired, reduced, or lacking. Corrective action must be taken to preserve safety. Changes in traffic volume and complexity have compounded problems and require improved air route traffic control center communication.

Description of Solution: Provide $10,000,000 to fund procurement of equipment such as racks, cables and transmitters, receivers, and their installation, which will improve air-ground communication capability and provide support for remote control facilities.

Benefits: This is a collection of projects to improve communication coverage for operational needs. The projects are mainly for correction of site specific problems or deficiencies such as establishing additional RCF channels and improving ARTCC sectorization.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 8,000.0
FY 1993 Appropriated	---	5,000.0
FY 1994 Request	---	10,000.0
Future Requirement	---	. a/
Total	Various	$23,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services/Regional Cost	Various	$10,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

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FACILITIES AND EQUIPMENT
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Budget Item No: 2A16 Fiscal Year 1994 CIP: 21-06; 61-06

Program Title: Traffic Management System (TMS)

Base :	$19,600,000	Locations: Various
Investment :	4,000,000	
Total Amount:	$23,600,000	

Basis for Request: There is a critical need to obtain near-term improvements in system performance and to reduce aircraft delays while the long-term TMS program continues to be defined. The required improvements include completing automation efforts which will present strategies to the traffic management specialists to resolve very high system demand levels, provide additional monitoring capabilities in the Air Traffic Control System Command Center (ATCSCC) and provide enhanced system monitoring.

Description of Problem: The need to upgrade the TMS to provide more effective traffic flow management in the National Airspace System (NAS) is critical. Improved flow control techniques are essential to reduce aircraft delays, support projected growth in aviation traffic, effectively utilize data from the ATCSCC, and to enable real time monitoring of special use airspace to provide full-time use of the NAS to all users.

Description of Solution: Provide $23,600,000 in FY 1994 to continue to develop, implement, and refine the Traffic Management System (TMS) enhancements and provide capabilities for additional locations. The enhancements will incorporate developed and tested functions; improve system reliability and availability; assure operational integrity; provide automated tools to improve local flow management capabilities; and provide automated tools for managing the traffic demand at airports and assisting in coordination of departures into the en route flow.

Benefits: The TMS upgrade program will provide a nationally integrated system to improve monitoring of the air traffic system and enhance assessments of system demand and capacity. It will enable traffic management specialists to decrease system delays by employing traffic flow strategies which are highly responsive to existing and projected traffic situations.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$113,383.5
FY 1993 Appropriated	---	11,500.0
FY 1994 Request	---	23,600.0
Future Requirement	---	30,200.0
Total	Various	$178,683.5

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Hardware Procurement and Documentation	---	$11,100.0
2. Software Enhancement	---	5,000.0
3. System Support, Training, and Documentation	---	4,200.0
4. Communication	---	3,300.0
Total	Various	$23,600.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A17 Fiscal Year 1994 CIP: 25-02; 45-02

Program Title: Data Multiplexing Network (DMN)

Amount: $17,500,000 Location: Various

Basis for Request: DMN provides the National Airspace System (NAS) with state-of-the-art data communications technologies for cost-effective point-to-point data transmissions. These technologies include: (1) data multiplexing which significantly increases telecommunication circuit capacity by combining several communications requirements over a single leased line; and (2) automated network monitoring and control, which enables the identification of failed network elements from central locations and allows real-time circuit restoral.

Description of Problem: A continuing effort is required to continue installations of Phase III network equipment. Phase III networks will replace outdated Phase I/II equipment and will provide communications services to the majority of NAS capital investment plan (CIP) projects scheduled for implementation in FY 1994.

Description of Solution: The use of data multiplexing is an integral part of the FAA's strategy for cost effective interfacility communications transmission. This project consists of three phases: Phase IIIA will provide statistical time division multiplexing (STDM) equipment, Phase IIIB will provide deterministic time division multiplexing (DTDM) equipment, and Phase IIIC will provide digital service (DS-1) equipment. Phase IIIA was awarded in April 1992. Phase IIIB was awarded April 1990. Phase IIIC equipment which was acquired under the radio communications link (RCL) backbone contract is complete. Provide $17,500,000 in FY 1994 to continue the purchase and installation of Phase IIIA STDM equipment, and Phase IIIB DTDM equipment.

Benefits: DMN will provide significant economic and operational benefits. A total capital investment of $25,000,000 in Phase I/II network assets currently results in an annual leased communications savings/avoidance of $13,000,000. These savings are primarily due to the reduction in the number of leased circuits required. Based on the Phase I/II experience and the DMN Phase III life-cycle cost benefit analysis, amortization of Phase III network equipment costs will occur in two years or less after being placed in service. Additional savings will be realized as Phase I/II equipment, which is outdated and expensive to maintain, is replaced with Phase III systems. Automated network monitoring and control systems will improve the reliability and availability of essential NAS communications services.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 42,441.3
FY 1993 Appropriated	---	10,500.0
FY 1994 Request	---	17,500.0
Future Requirement	---	21,000.0
Total	Various	$91,441.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	Various	$17,500.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A18 Fiscal Year 1994 CIP: 45-20

Program Title: Critical Communications Support

Amount: $2,000,000 Location: Various

Basis for Request: FAA is committed to improving needed telecommunications services in order to improve reliability, flexibility, and survivability as well as to control and reduce costs. The acquisition and management of agency telecommunications systems is a key element of FAA's strategy to meet this commitment. Examples of such systems currently implemented or in the process of being implemented include the data multiplexing network (DMN), the radio communications link (RCL), the national airspace data interchange network (NADIN II), and the Leased Interfacility NAS Communication System (LINCS).

Description of Problem: Telecommunications systems owned and/or managed by FAA require modifications and minor expansions each year to meet new critical requirements. Included are equipment purchases, the addition of transmission circuit drop-insert capability, capacity expansion, circuit cutovers and terminal equipment rearrangements, switching system minor expansions, and equipment or preparation for leased services. These network changes must be made continuously to ensure that the network meets operational requirements in a cost-effective manner at all times.

Description of solution: Provide $2,000,000 to support telecommunications activities consisting of telecommunications facilities operation and leased communications initiatives. This funding will be used to provide radio communications link (RCL) circuit terminations, increase RCL circuit capacity, reconfigure the data multiplex network, provide diversity switching and support leasing initiatives, including the Leased Interfacility NAS Communication System (LINCS).

Benefits: Telecommunications support project efforts will improve National Airspace System (NAS) telecommunications in these areas:

Operations - increased capacity and capabilities to meet new requirements
Performance- improved reliability, availability, and maintainability
Cost - increased savings/cost avoidance

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$40,007.3
FY 1993 Appropriated	---	8,000.0
FY 1994 Request	---	2,000.0
Future Requirement	---	. a/
Total	Various	$50,007.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	Various	$2,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A19 Fiscal Year 1994 CIP: 21-15; 42-22; 46-16

Program Title: En Route Communications and Control Facilities

Amount: $11,548,000 Location: Various

Basis for Request: The FAA must upgrade and improve various en route communications facilities and equipment on a continuing basis to satisfy operational requirements. The communications facilities provide the means for continuous reliable air/ground communications for air traffic control service. Increases in traffic and airspace restructuring require additional operating positions to operate an efficient air traffic control (ATC) System. The San Juan combined center radar approach control (CENRAP) is in need of repair and a general upgrading of equipment to sustain the ATC system in San Juan until the facility can be consolidated into the Miami area control facility (ACF) in the post-FY 2000 time period.

Description of Problem: New communications equipment must be installed for additional operating positions to meet air traffic control requirements for increased traffic and airspace realignments. Additional flight data input/output (FDIO) devices are also required to provide interfacility communications in support of additional positions. Obsolete and worn out communications equipment must be replaced on an annual basis. Existing facilities must be improved or expanded to assure the continuance of existing service and maintenance of the air traffic control system.

Description of Solution: Provide $11,548,000 to provide improvements required to sustain the existing San Juan CENRAP facility; provide continued ACF program planning, development and implementation; to replace obsolete and worn out equipment and provide in-service engineering to improve and maintain the air traffic control communications system.

Benefits: Air to ground and inter/intra facility communications are among the most important entities in the performance of air traffic control. This is a collection of improvement projects required to keep the national airspace system facilities efficient and up-to-date. The projects are for correction of site specific problems or deficiencies, additional operating positions to meet increased traffic volume and airspace restructuring, site preparation, and terminal in-service engineering.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$52,541.1
FY 1993 Appropriated	---	13,000.0
FY 1994 Request	---	11,548.0
Future Requirement	---	. a/
Total	Various	$77,089.1

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Sustain San Juan CENRAP	1	$5,000.0
2. ACF Support	---	500.0
3. Remove/replace RML/RCO Towers	2	82.0
4. Establish additional operating positions	5	384.0
5. Improve ARTCC Sectorization	3	1,700.0
6. Replace, upgrade or relocate RCAG	2	1,052.0
7. Establish RCO	1	174.0
8. Establish high altitude sector	1	632.0
9. Reconfigure operating positions	1	109.0
10. Establish ARTCC operations console	1	615.0
11. In-Service Engineering	---	1,300.0
Total	17	$11,548.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A20 Fiscal Year 1994 CIP: 46-16

Program Title: Central Flow Control Facility - Relocation

Amount: $1,400,000 Location: 1

Basis for Request: A number of cost and feasibility studies have validated the need to relocate functions involved in managing traffic flows and airspace in the National Airspace System (NAS). Existing central flow control functional capabilities are being taxed to their limits in meeting today's demands on NAS air traffic service. Projected increases in user and system demand will require greater capability to preclude widespread and excessive air traffic delays throughout the system. Statistical data gathered from the "System Capacity" initiatives indicate a majority of the existing 630 en route sectors will experience excessive routing over load during the 1993-94 time frame unless the capabilities of the central flow control facility and associated functions are improved, available, and operational.

Description of Problem: The current centralized national flow control functions are housed in extremely limited space within the FAA headquarters building. There is no space available to accommodate equipment being procured under the enhanced Traffic Management System (TMS) program or to increase operational capability, for example, operational positions, to meet current needs.

Description of Solution: Provide 3rd year funds in the amount of $1,400,000 to relocate the Central Flow Control Facility and rehabilitate the vacated FOB-10A space.

Benefits: Improved operational facility environment will provide adequate space to meet current operational requirements and to operate the Air Traffic Central Flow Control Facility.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 500.0
FY 1993 Appropriated	---	1,419.0
FY 1994 Request	---	1,400.0
Future Requirement	---	0.0
Total	1	$3,319.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Task	Location/ Quantity	Estimated Cost ($000)
1. Program Management	---	$ 300.0
2. Program Technical Support	---	200.0
3. FOB-10A Space Rehabilitation	---	900.0
Total	1	$1,400.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A21 Fiscal Year 1994 CIP: 44-03

Program Title: Air/Ground Communications Radio Frequency Interference (RFI) Elimination

Amount: $5,000,000 Location: Various

Basis for Request: Remote communications facilities (RCFs) transmitting and receiving equipment must be replaced with modern state-of-the-art hardware at selected RCF's to reduce radio frequency interference and improve operational performance.

Description of Problem: The existing equipment uses obsolete technology that is prone to causing and being susceptible to radio frequency interference.

Description of Solution: Provide $5,000,000 to purchase state-of-the-art air/ground communications equipment and ancillary devices, (for example, multicouplers, transmitter combiners, ferrite isolators) to reduce the generation of and susceptibility to radio frequency interference.

Benefits: This equipment will improve operations by reducing the number of instances of radio frequency interference, increase system availability, and reduce maintenance associated with fewer trouble calls.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$11,423.2
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	5,000.0
Future Requirement	---	. [a]
Total	Various	$16,423.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	Various	$5,000.0

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[a] Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A22 Fiscal Year 1994 CIP: 46-16

Program Title: Modernize/Upgrade Central Altitude Reservation Function (CARF)

Amount: $1,500,000 Location: Various

Basis for Request: CARF is an essential element in the coordination and approval of large scale military aircraft, special missions and classified activities. It is recognized internationally as the prime office for coordinating these missions. The current facility requires a major modernization to meet requirements.

Description of Problem: No system upgrades to the CARF facility have been made in the past seven years. It has major communications deficiencies, and an obsolete computer system located in Atlantic City, and no workstations. It has no direct communications with Service B, AUTODIN, or NADIN. Specialists must leave the facility to walk to the FAA Communicatons Center located on the first floor to pick up/deliver mission message traffic along with CARF NOTAM Messages. Recent world events such as Desert Storm and Desert Shield have validated the requirement to continue the CARF facility.

Description of Solution: Provide funds in the amount of $1,500,000 to upgrade the CARF facility with a new computer system, workstations and an adequate communications system.

Benefits: CARF will be more responsive to DOD and ATC requirements, for both domestic and international traffic.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	750.0
FY 1994 Request	---	1,500.0
Future Requirement	---	2,250.0
Total	Various	$4,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Computers/Workstations	---	$ 600.0
2. Communications System	---	300.0
3. Software Development	---	400.0
4. Program Support	---	200.0
Total	Various	$1,500.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A23 Fiscal Year 1994 CIP: 46-31

Program Title: Display Channel Complex Rehost (DCCR)

Amount: $10,800,000 Location: 1

Basis for Request: Existing Air Route Traffic Control Center (ARTCC) display channel equipment will be in service longer than originally planned due to delays in the implementation of the Advanced Automation System (AAS). This project will provide a display channel replacement to solve reliability problems associated with the display channel equipment and will increase display channel capacity to meet projected air traffic requirements.

Description of Problem: ARTCC display channels have experienced a trend toward higher failure rates in recent years. Additionally, current FAA predictions indicate that some ARTCCs may exceed their capacity limits before the full scale implementation of AAS. ARTCCs have exhausted their capacity to add radar sectors due to limitations in the display channel processors and the associated Display Generators (DG) and Radar Keyboard Multiplexers (RKM).

Description of Solution: Provide $10,800,000 in FY 1994 for upgrading the prototype system to a full functioning operational system; and for design validation testing of all software and hardware newly developed or obtained from the prototype system.

Benefits: Rehosting the display channel software on new AAS compatible hardware solves reliability problems affecting the display channel. The new hardware will perform with high reliability. Maintenance technician training will be simplified due to the employment of AAS compatible hardware. The resulting increase in reliability, maintainability, and availability will improve safety by decreasing the probability of system failures and will reduce the costs associated with repairs. In addition, replacement of the display channel processors, DGs, and RKMs will provide an increased display channel capacity (up to 90 display positions).

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	1	10,800.0
Future Requirement	9	46,900.0
Total	10	$57,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. FAA Technical Center Integration and Testing	---	$ 2,500.0
2. Prototype Upgrade and Testing	---	8,300.0
Total	1	$10,800.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A24 Fiscal Year 1994 CIP: 24-15

Program Title: Long Range Radar (LRR) Program - Establish

Amount: $10,000,000 Location: 1

Basis for Request: In order to meet air traffic control requirements, the FAA provides en route radar services at qualified locations. The en route air traffic control system relies on long range radar to ensure safe operations and proper aircraft separation.

Description of Problem: Due to the closure of Loring Air Force Base in Maine, optimal air traffic control operations cannot be achieved.

Description of Solution: Provide $10,000,000 in FY 1994 to fund procurement of ARSR-4 system hardware and software, system spares, engineering support and logistics items. An estimated $10,000,000 will be needed in the future to complete implementation of the ARSR-4 system.

Benefits: Enhanced long range radar coverage will be attained in the Loring, Maine area.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	1	10,000.0
Future Requirement	---	10,000.0
Total	1	$20,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
LRR System	1	$10,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A25 Fiscal Year 1994 CIP: 32-28

Program Title: DOD Base Closure

Amount: $7,600,000 Location: Various

Basis for Request: The military has a Congressional commitment to close a number of bases. Some of these bases currently provide air traffic services. The FAA will have to assume these services six months before the bases close.

Description of Problem: In October 1991 Congress approved 35 bases for closure. These bases began closing in 1992. In addition, two more rounds of closures are scheduled to be announced in 1993 and 1995. The DOD is currently performing significant air traffic control functions for civilian users of the NAS in the vicinity of certain bases. The FAA is required by the Federal Aviation Act of 1958 to foster aviation and to provide air traffic services where needed. In addition, FAA is encouraging local communities to continue to operate bases as civilian airports to minimize system capacity constraints.

Description of Solution: Provide first year funds in the amount of $7,600,000 to allow the FAA to convert various military bases to civilian facilities with standard FAA equipment. The FAA expects to use the existing military equipment on these bases and remote some functions until the equipment can be replaced with standard FAA equipment (e.g., radar, landing aids, communications).

Benefits: System capacity will improve. Large volumes of aircraft currently operate continuously within the nation's airspace system and further growth and expansion in capacity is closely linked to the number of properly equipped and maintained airports. The closure of military bases and subsequent conversion of these bases to civilian airports has the potential to add needed landing capacity to many communities.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	Various	7,600.0
Future Requirement	Various	93,900.0 a/
Total	Various	$101,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Program Management	---	$ 400.0
2. System Hardware/Implementation	---	7,200.0
Total	Various	$7,600.0

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a/ Requirements are based on activity levels and local situations which are validated on a year-to-year basis. This total reflects requirements for the 1991 DOD Base Closure Commission report only. Additional funding will be required as a result of the 1993 and 1995 reports.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2A26 Fiscal Year 1994 CIP: 46-16

Program Title: Performance Monitoring Analysis

Amount: $900,000 Location: Various

Basis for Request: The current systems and techniques used to assess ATC automation adequacy and to project future need requires significant enhancements. An automated means of data collection and analysis to support the projection, both long and short term, of the capacity and performance of air traffic automation systems (en route and terminal) is required. Such a system must provide sufficient data to project and justify new and enhanced operational hardware and software for the ATC automation systems. An automated means to assess processor capacity under average and maximum traffic loads is needed. Such a system must be capable of projecting capacity growth requirements with sufficient lead time to allow procurement of the required hardware and software to satisfy the capacity requirements. Such a need has been identified in several GAO reports.

Description of Problem: At the present time, only automated radar terminal system (ARTS) sites and the en route Host equipment provide any capacity data. The computer reliability data and capacity data is collected in a variety of manual and automated forms. Data collection is largely a labor intensive effort, difficult to enhance and inflexible. The collection is sometimes incomplete. The integration and analysis of this data is time consuming and labor intensive, plus the volume of data precludes any in-depth analysis. Other valuable parameters that would be useful in supporting capacity analysis are not collected. It is extremely difficult to compare processor capacity data with either the ATC system capacity data or the reliability/maintainability data of the national airspace performance reporting system (NAPRS). Because of these deficiencies, it is extremely difficult to use the data to project and/or justify new/enhanced operational hardware and software for the ATC automation systems.

Description of Solution: Provide $900,000 to initiate procurement of data collection devices for TRACONs and ARTCCs for the collection of performance data and archiving of that data on a periodic basis. The objective is to develop an integrated performance monitoring information system that will provide data for addressing the adequacy of the air traffic automation systems which is expandable beyond just ARTS and Host. The system will automatically collect data in a format that will facilitate access for various operations and service organizations.

Benefits: This program will provide an automated means to support capacity and performance of the air traffic system, both en route and terminal.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	900.0
Future Requirement	---	6,200.0
Total	Various	$7,100.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Program Management	Various	$ 900.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B01 Fiscal Year 1994 CIP: 24-13; 44-60; 34-13

Program Title: Airport Surveillance Radar (ASR)

Amount: $44,300,000 Location: Various

See Narrative Justification for Budget Item No: 1B01

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B02 Fiscal Year 1994 CIP: 24-18

Program Title: Terminal Doppler Weather Radar (TDWR)

Amount: $5,800,000 Location: Various

Basis for Request: The terminal doppler weather radar (TDWR) program will establish a terminal aviation weather radar capability that will provide accurate aviation weather products (microburst, gust fronts, and related hazardous windshear). It will also furnish software algorithms to improve the radar presentation of weather data.

Description of Problem: Present radar systems can only detect the location and intensity of precipitation. The presence, location, and altitude of hazardous weather phenomena such as turbulence, microbursts, and gust fronts producing windshear conditions are not adequately determined.

Description of Solution: Provide $5,800,000 to continue implementation of 47 TDWR systems at high activity terminal locations that experience microburst and other hazardous weather phenomena. Funding will cover implementation activities performed by technical and engineering support contractors.

Benefits: Providing terminal area Doppler weather radar will increase aviation safety with the accurate and timely detection of hazardous aviation weather conditions. Weather related arrival and/or departure delays will be reduced allowing savings in aviation fuel consumption.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	47	$317,647.0
FY 1993 Appropriated	---	20,000.0
FY 1994 Request	---	5,800.0
Future Requirement	---	28,500.0
Total	47	$371,947.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Technical/Engineering Support	Various	$5,800.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B03 Fiscal Year 1994 CIP: 24-12

Program Title: Mode S - Provide

Amount: $10,100,000 Locations: Various

Basis for Request: Mode S is the successor to the air traffic control radar beacon system (ATCRBS) as FAA's secondary surveillance capability. Although the production buy is funded in prior years, regional and other software modification costs were deferred while awaiting contractor deliveries of equipment and software.

Description of Problem: The current radar is limited in its ability to keep pace with traffic growth. Without improved surveillance, additional radar track processing, and data link, most of the controller/pilot productivity enhancements inherent in the advanced automation projects cannot be realized. Labor intensive maintenance and expensive, obsolete parts drive operational costs for current radars even higher.

Description of Solution: Acquire Mode S ground sensors to relieve the secondary surveillance deficiencies noted above. The FY 1994 request would provide $1,400,000 for system modifications, $1,540,000 for regional support, $1,100,000 for test equipment, $4,900,000 for continued program support which includes operational and shakedown testing, and $1,160,000 for provisioning.

Benefits: Compared with the current system, Mode S will improve accuracy, reduce interference, replace hard-to-maintain equipment, and improve productivity with a two way data link between aircraft and controllers or data bases on the ground.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	137	$397,900.0
FY 1993 Appropriated	---	5,300.0
FY 1994 Request	---	10,100.0
Future Requirement	---	25,100.0
Total	137	$438,400.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. System Modifications	---	$ 1,400.0
2. Regional Support	---	1,540.0
3. Test Equipment	---	1,100.0
4. OT&E of Performance Upgrades	---	2,900.0
5. Support Contractors	---	2,000.0
6. Provisioning	---	1,160.0
Total	Various	$10,100.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2804 Fiscal Year 1994 CIP: 32-16

Program Title: Digital Bright Radar Indicator Tower Equipment (DBRITE)

Amount: $8,000,000 Location: Various

Basis for Request: The FAA requires additional DBRITE equipment to meet existing and new service requirements for primary and satellite towers. This equipment is used to assist the air traffic controller in identifying and sequencing aircraft traffic, and is an important aid in providing traffic advisories to aircraft in visual flight rules (VFR) conditions.

Description of Problem: Air traffic growth and procedural changes now qualify additional satellite towers for DBRITE and selected existing DBRITE towers for position expansion.

Description of Solution: Provide $8,000,000 to procure additional DBRITE equipment with initial spares, installation, and provisioning.

Benefits: The DBRITE equipment will provide additional display positions at busy air traffic control towers and establish positions at remote towers that do not currently have a radar display. This will reduce verbal coordination and increase safety at both the hub and remote towers.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 3,000.0
FY 1993 Appropriated	---	7,700.0
FY 1994 Request	---	8,000.0
Future Requirement	---	33,600.0
Total	Various	$52,300.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. DBRITE	---	$6,700.0
2. FAA Support/Regional Costs	---	300.0
3. Contract Support	---	1,000.0
Total	Various	$8,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B05 Fiscal Year 1994 CIP: 64-27

Program Title: Precision Runway Monitors

Amount: $27,000,000 Location: Various

Basis for Request: Increasing airport capacity is an urgent FAA mission requirement. Immediate capacity increases can be realized with the installation of precision runway monitor (PRM) radars and displays. Five of the candidate airports having closely spaced (4,300-3,400 feet) parallel runway pairs have been validated as having positive cost-benefits. Other airports having more closely spaced pairs, triple, or quadruple parallel runways also stand to benefit from the new radars.

Description of Problem: Airports with parallel runways can use those runways simultaneously in visual conditions; but in instrument conditions, the runways cannot be used simultaneously unless they are at least 4,300 feet apart. Traffic volume could be increased if more timely and accurate radar surveillance data were available to the controller in bad weather.

Description of Solution: In FY 1992, Congress appropriated $35,000,000 for the procurement of five Electronically Scanned (E-Scan) PRM systems. Provide $27,000,000 in FY 1994 for continued software development for increased target capacity, installation at four sites, spares, contractor maintenance, and contractor support activities needed for commissioning of the five E-Scan systems.

Benefits: Approach landings at the five airports which currently have restricted use of their parallel runways are estimated to increase by as much as 44 percent during instrument meteorological conditions (IMC). Additional sensors will be installed at locations with the greatest potential benefit.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	6	$ 83,404.0
FY 1993 Appropriated	---	14,000.0
FY 1994 Request	---	27,000.0
Future Requirement	---	14,000.0
Total	6	$138,404.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Installation Costs	Various	$ 8,500.0
2. Spares	---	3,000.0
3. Contractor Maintenance/Support	---	5,000.0
4. Production/Test/Development	---	5,000.0
5. Regional/Other	---	3,000.0
6. Program Management Support	---	2,500.0
Total	Various	$27,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B06 Fiscal Year 1994 CIP: 62-23

Program Title: Airport Movement Area Safety System (AMASS)

Amount: $13,100,000 Locations: 12

Basis for Request: Airport Surface Detection Equipment (ASDE-3) provides Air Traffic Controllers with a video display of all vehicles and obstacles on an airport's runways and taxiways. An essential requirement exists to provide automatic aural and visual warnings and alerts to local and ground controllers whenever ASDE-3 detects potential runway incursions or accidents, as controllers are not able to watch the display at all times. AMASS provides the necessary algorithms to enable the ASDE-3 to function in an automatic alert mode.

Description of Problem: Continuing runway incursions, such as in Detroit and Los Angeles, reinforce the requirement for automated monitoring and controller alerts to detect potential runway incursions and accidents. Although ASDE-3 itself will improve safety, the controller must continuously monitor the radar to prevent runway incursions. AMASS provides an automated backup to alert the controller to a potential conflict.

Description of Solution: The AMASS system uses the ASDE-3 as the surveillance sensor. Safety algorithms within AMASS provide timely aural and visual alerts to the controller when a conflict is imminent. AMASS is designed to improve safety by allowing the controller sufficient reaction time to intervene and resolve potential conflicts. In FY 1994, $13,100,000 is requested for production and installation of AMASS at twelve sites.

Benefits: Improve safety of aircraft operations on the ground by providing controllers with automatic runway incursion warnings and alerts.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	3,000.0
FY 1994 Request	12	13,100.0
Future Requirement	22	15,000.0 a/
Total	34	$31,100.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	12	$13,100.0

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a/ A future requirement is currently under review to procure AMASS for the ten ASDE systems added in the FY 1993 Conference Report.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B07 Fiscal Year 1994 CIP: 32-20

Program Title: Mode C Intruder (MCI) - Expand ARTS IIIA Capacity

Amount: $2,500,000 Location: Various

Basis for Request: The Mode C Intruder program expands the conflict alert functions at ARTS IIIA facilities to include warnings of potential conflicts between an aircraft under the control of the air traffic controller (associated aircraft) and an aircraft not under the control of the air traffic controller (unassociated aircraft), and provides repair and support of ARTS IIIA automation equipment.

Description of Problem: With deregulation of the airline industry and the use of traffic hubbing at selected airports, aviation has undergone significant growth in recent years. This growth has resulted in an increase in potentially hazardous situations arising between associated and unassociated aircraft.

Description of Solution: Provide $2,500,000 in FY 1994 for continued MCI hardware production and installation.

Benefits: Adaptation and installation of Mode C Intruder software and hardware will assist the air traffic controller by expanding the conflict alert function at ARTS IIIA facilities to include associated/unassociated aircraft pairs. The addition of Mode C capability to ARTS IIIA facilities will increase safety by avoiding potentially hazardous situations when an unassociated aircraft intrudes on the airspace of an associated aircraft.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 94,200.0
FY 1993 Appropriated	---	13,100.0
FY 1994 Request	---	2,500.0
Future Requirement	---	0.0
Total	Various	$109,800.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Hardware Production and Installation	Various	$2,500.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B08 Fiscal Year 1994 CIP: 32-26

Program Title: Southern California Terminal Radar Approach Control (TRACON) Facilities Consolidation

Amount: $1,000,000 Location: Various

Basis for Request: Consolidation of five Los Angeles Basin terminal radar approach control facilities (TRACON's) will enhance traffic management in Southern California and will allow more efficient use of the airspace.

Description of Problem: The Los Angeles Basin is surrounded by the Pacific Ocean and the San Rafael, Sierra Madre, Tehachapi, San Gabriel, San Bernardino, San Jacinto, and Santa Ana Mountain ranges. The basin area is approximately 75 miles wide and 100 miles long. Instrument operations in Southern California have increased 122 percent over the last 12 years. The combination of increased traffic and airspace complexity necessitates regulatory airspace action in, and adjacent to, the Los Angeles Basin. The major portion of this airspace below 10,000 feet is currently controlled by TRACON facilities located at Los Angeles, Burbank, El Toro, Ontario, and San Diego. These five TRACON facilities provide instrument flight rule services for 21 airports within their respective areas of jurisdiction. This includes five major air carrier airports and three military air fields.

Studies addressing the consolidation of terminal radar approach control facilities in the Southern California area can be traced back to the early 1970's. These studies addressed individual facility requirements to improve arrival and departure control procedures, without focusing on the entire Southern California area. Working groups were formed to develop a systems approach to the growing, complex problem of providing optimum service to the maze of airports located in the basin area.

In FY 1988, 2,234,500 instrument operations were recorded, and the forecast calls for well over 3,000,000 per year by the year 2000.

Description of Solution: Provide funding of $1,000,000 for the inclusion of San Diego TRACON in the new facility. Funding for permanent change of station moves to support the consolidation of the five Los Angeles Basin facilities has been included in Budget Activity Five ($7,985,000).

Benefits: This consolidation will enhance safety, improve airspace utilization, and provide an IFR air traffic control system approach for the major hub and satellite reliever airports in Southern California.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$102,700.0
FY 1993 Appropriated	---	10,000.0
FY 1994 Request	1	1,000.0
Future Requirement	---	0.0
Total	Various	$113,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Headquarters Support	Various	$1,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B09 Fiscal Year 1994 CIP: 32-22

Program Title: Dallas/Fort Worth Metroplex Program

Amount: $13,300,000 Location: 1

Basis for Request: The Dallas/Fort Worth Metroplex Air Traffic System Plan has been developed to meet the current airport activity and forecasted air traffic growth over the next two decades.

Description of Problem: The existing air traffic control system was designed in the late 1960's and has provided adequate air traffic service in the past. The increased volume of traffic, coupled with the operational complexity of the airspace encompassing the Dallas/Fort Worth area, has placed constraints on efficient air traffic control operations.

Description of Solution: The FY 1994 request is to provide $13,300,000 for the accomplishment of the following projects: begin site preparation and equipment installation in expanded TRACON; acquisition of administrative telephone system and furniture for the expanded TRACON; establish/add interim back-up enroute communications capabilities; installation of additional low density radio communications links; continue purchase and installation of fiber optic loop cable; installation of six additional sensors for low level wind shear advisory system; establish additional position at Waco TRACON; construction of the new parking facility to serve center ATCT and expanded TRACON complex; acquisition of compass locator equipment; and acquisition of Mode S for east ASR-9.

Benefits: Airport and airspace capacity will be increased and user delays will be reduced based on the major air traffic procedural changes planned as part of the overall Dallas/Fort Worth Metroplex Program.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 88,458.1
FY 1993 Appropriated	---	43,675.0
FY 1994 Request	1	13,300.0
Future Requirement	1	20,500.0
Total	1	$165,933.1 a/

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Task	Location/ Quantity	Estimated Cost ($000)
1. Headquarters Procurement	---	$ 4,735.3
2. Regional Site Work	1	8,564.7
Total	1	$13,300.0

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a/ The estimated total program-cost has increased by $20,000,000. This increase in the total program cost was caused by the "stretching out" of the original program over several additional fiscal years; the requirement for multiple and/or expensive procurements due to delays and/or cost escalations in national equipment/systems acquisitions (i.e., thus requiring initial, interim, and/or follow-on procurements to meet program schedules); and the need to address previously approved requirements in a more extensive/costly manner. There has been no change in the program scope.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B10 Fiscal Year 1994 CIP: 42-21; 46-16

Program Title: Terminal Software Development Implementation

Amount: $7,400,000 Location: Various

Basis for Request: Software enhancements and modification implementation to the terminal air traffic control system are required to ensure that these NAS facilities meet the increasing operational and safety needs.

Description of Problem: FAA requirements for modernizing and enhancing terminal automation software/firmware exceed in-house capabilities. The implementation of enhancements to software for the existing operational automated radar terminal systems (ARTS) and en route automated tracking systems (EARTS) must continue until replaced by the Advanced Automation System (AAS).

Description of Solution: Provide $7,400,000 for contractor support for existing software and firmware, including implementation of corrections of software anomalies and enhancements to satisfy required system processing modifications; integration of ARTS/EARTS operational software enhancements; support and configuration control of the national library of local case files; and to provide full digital ARTS display (FDAD) maps.

Benefits: Continued improvement of the terminal automation systems software/firmware will keep the NAS facilities operating until implementation of AAS. This will ensure that software/firmware functionality meets operational and safety requirements.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$11,500.0
FY 1993 Appropriated	---	9,000.0
FY 1994 Request	---	7,400.0
Future Requirement	---	. a/
Total	Various	$27,900.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Terminal Software Development Implementation	Various	$7,000.0
2. FDAD Maps	---	400.0
Total	Various	$7,400.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B11 Fiscal Year 1994 CIP: 32-24

Program Title: Chicago Terminal Radar Approach Control (TRACON) Relocation

Amount: $18,200,000 Locations: 1

Basis for Request: The Chicago O'Hare TRACON is the second busiest terminal radar approach control facility in the United States, handling over one million flights annually to and from O'Hare International Airport and at surrounding satellite airports including Chicago Midway. Instrument operations at the Chicago TRACON have increased annually by 4.5 percent from FY 1984 through FY 1989, and are forecast to increase annually by 6.7 percent from FY 1990 through FY 1995. Actual growth in instrument operations at FAA towered satellite airports (approach control services provided by O'Hare TRACON) have increased over 100 percent from FY 1984 through FY 1989.

Description of Problem: The existing TRACON facility was established in 1971 and has been reconfigured and expanded to its maximum. The facility cannot be expanded to meet current and future traffic activity requirements. A facility staff study performed as an adjunct to the O'Hare System Safety and Efficiency Review report determined further TRACON expansion or addition is not feasible due to its location relative to other airport facilities and structures. Also identified in the report are relocation alternatives and recommendations such as increased space, additional operational radar positions (facility maximum is 18 but guidelines indicate 24 are required today), and controller recruitment and retention as new facility requirements.

Description of Solution: Provide $18,200,000 for procurement of a telecommunications system, a radio communications loop, including Leased Interfacility NAS Communications System, and radio equipment (i.e., transmitter receivers, antennas, cabling, etc.) to support the relocation and expansion of this major TRACON facility.

Benefits: Facility relocation will enhance safety and benefit the users through improved airspace utilization and increased capacity. It will reduce delays and enhance safety in the Great Lakes Area. It will also provide the space, equipment, and enhancements needed to meet urgent operational requirements, improve quality of life, and provide the basis for the recruitment and retention of a qualified work force.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$49,600.0
FY 1993 Appropriated	---	21,000.0
FY 1994 Request	1	18,200.0
Future Requirement	---	2,700.0
Total	1	$91,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Headquarters Procured Equipment and Services	---	$18,100.0
2. Regional Site Work	---	100.0
Total	---	$18,200.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B12 Fiscal Year 1994 CIP: 32-04

Program Title: ARTS IIIE Upgrades for Selected Air Traffic Facilities

Amount: $23,600,000 Locations: 2

Basis for Request: To upgrade terminal automation at new/expanded TRACONs from the ARTS IIIA to ARTS IIIE configuration to meet projected air traffic requirements until implementation of AAS.

Description of Problem: All FAA high density terminal radar approach control facilities (TRACONs), with the exception of the New York TRACON, are supported by the ARTS IIIA system. By the year 1995, some ARTS IIIA systems will be operating near or beyond rated capacity.

Description of Solution: Provide $23,600,000 in FY 1994 for procurement of ARTS IIIE hardware, software, and program support. The requested funds will upgrade the ARTS IIIA to the ARTS IIIE hardware configuration at Dallas/Fort Worth (DFW) and Southern California (SCT), adapt ARTS IIIE software to support their air traffic control requirements, and provide necessary integrated logistic support for the ARTS IIIE program.

Benefits: Installation and adaptation of ARTS IIIE hardware and software will overcome inherent design limitations in the ARTS IIIA that preclude further expansion (beyond that included with the Mode C Intruder (MCI)) to meet ever increasing demands for additional target tracking and display abilities, and will enhance air safety and help alleviate traffic flow problems prior to the implementation of AAS.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	1	13,200.0
FY 1994 Request	2	23,600.0
Future Requirement	---	24,800.0
Total	Various	$61,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Hardware	2	$9,300.0
2. Software Adaptation	---	6,000.0
3. NAILS	---	4,100.0
4. Program Management	---	2,300.0
5. Engineering Services	---	1,900.0
Total	2	$23,600.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B13 Fiscal Year 1994 CIP: 26-01

Program Title: Remote Maintenance Monitoring System (RMMS)

Base	: $20,700,000	Location: Various
Investment	: 7,000,000	
Total Amount:	$27,700,000	

Basis for Request: This is a continuation of a multiyear program to establish the remote maintenance monitoring system (RMMS) in accordance with the requirements and design in the National Airspace System (NAS) specifications. Contracts were awarded in FY 1989 and FY 1990 for processor enhancements, maintenance data terminals, and applications software.

Description of Problem: Current maintenance procedures rely on frequent site visits to accomplish necessary preventive and corrective maintenance tasks. Under plans to consolidate the work force into centrally located centers, the level of resources demanded by the number and duration of site visits will not be available. Automated facility performance monitoring and control information will be provided from remote locations to the maintenance specialists at centrally located maintenance centers.

Description of Solution: Provide $27,700,000 to continue development, production, and installation of the hardware and software that will enable NAS subsystems to be monitored and controlled from central locations throughout the NAS. The RMMS will allow the FAA to automate and centralize its maintenance operations. The funding will provide modifications to already deployed NAS subsystems for the addition of remote monitoring capabilities (such as radar and environmental systems); for completion of Maintenance Processor Subsystems (MPS) enhancements; software connectivity of newly developed and retrofitted subsystems; and the establishment of ARTCC maintenance control centers (MCC) to centralize maintenance activities. Funding is required in FY 1994 for production of maintenance management system software (MMS), monitor and control software (MCS), and ARTCC MCC.

Benefits: The remote maintenance monitoring system will increase work force productivity, support work force consolidation, and improve the quality of services being provided by NAS facilities and equipment needed for air traffic control. Increased efficiencies in these areas will limit the number of airway facilities staff needed as the new NAS subsystems become operational. The commissioned retrofitted subsystems (ARSR-1/2, ARSR-3, ATCBI-5, and ILS) are continuing to produce benefits attributable to the RMM.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$245,967.6
FY 1993 Appropriated	---	31,800.0
FY 1994 Request	---	27,700.0
Future Requirement	---	22,500.0
Total	Various	$327,967.6

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. MPS Enhancements	---	$13,500.0
2. MCC	---	3,500.0
3. MCS and MMS Software	---	7,800.0
4. FAA Tech Center Operational Test and Evaluation	---	1,800.0
5. Program Management	---	1,100.0
Total	Various	$27,700.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B14 Fiscal Year 1994 CIP: 22-13, 42-14

Program Title: Terminal Air Traffic Control Facilities Replacement

Amount: $1,000,000 Location: 10

Basis for Request: The FAA owns or leases over 400 control towers and must continually replace various tower facilities and equipment to provide an acceptable level of safe air traffic control service and to meet current and future operational requirements.

Description of Problem: The increase in terminal air traffic activity has caused an expansion in services such as radar advisory service for aircraft operating under visual flight rules, and special handling for noise abatement programs. Airport expansion has increased the distances from the control tower to outer aircraft movement areas creating blind viewing areas which require special handling by air traffic controllers. Many of the FAA's control tower facilities are 20-40 years old and there is an ongoing requirement to replace or modernize several facilities annually.

Description of Solution: Provide $1,000,000 for engineering studies, site selection, long lead time equipment purchases architectural and engineering work to be accomplished in FY 1994. This phased funding approach ensures that each project is planned and engineered effectively to meet current and future operational/technical requirements, and that adequate funds are programmed for construction and equipment installation at each site.

Benefits: Strategic location and adequate height and size of an air traffic control tower will provide an efficient working environment and enable controllers to achieve an aerial view of the airport and see outer aircraft movement areas resulting in enhanced safety and increased capacity.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	83	$417,692.6
FY 1993 Appropriated	10	18,332.0
FY 1994 Request	10	1,000.0
Future Requirement	---	. [a]
Total	103	$437,024.6

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[a] Requirements are based on activity levels and local situations which are validated on a year to year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Replace Terminal Air Traffic Control Facilities	10	$1,000.0

First phase funding for control tower facilities to be replaced in FY 1994:

Alaska	Kansas	Washington	Ohio	Texas
Merrill	Salina	Everett	Columbus	San Angelo
$100,000	$100,000	$100,000	$100,000	$100,000
Florida	**New Hampshire**	**California**	**Virginia**	
Ft. Lauderdale	Manchester	Oakland	Newport News	
$100,000	$100,000	$100,000	$100,000	
Virginia				
Roanoke				
$100,000				

Locations are not in priority order and are subject to change based upon site evaluations.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B15　　Fiscal Year 1994　　CIP: 42-13; 32-31; 46-16

Program Title: Air Traffic Control Facilities Modernization

Amount: $25,212,000　　Location: Various

Basis for Request: The FAA must upgrade and improve various terminal facilities and equipment on a continuing basis to provide an acceptable level of safe service, and to meet current and future operational requirements.

Description of Problem: In many cases, normal equipment and structures wear out rendering facilities obsolete or in need of improvements. During the time ATCT/TRACON facilities have been in service, many changes have taken place in operational or safety requirements and energy costs. This program is to ensure that there will be an orderly transition to the automated equipment and other new systems and that the integration of these and other scheduled systems into the Air Traffic Operations environment will have minimum impact to existing operations. Equipment that is scheduled to be delivered to the ATCT's, include: Terminal Doppler Weather radar (TDWR), Airport Surface Detection Equipment (ASDE III), Terminal Information Display System (TIDS), Parallel Runway Monitor (PRM), and Tower Control Computer Complex (TCCC). This equipment requires space suitable for integration into the tower environment.

To transition to the automated and other new equipment configurations, it will be necessary to assess individual ATCT projects and facilities for compatibility with tower cab and tower equipment room; assist in performing human factors analyses for the most effective positioning of the air traffic controller display and control equipment via the airway facilities tower integration laboratory (AFTIL); assess and plan for temporary shelters and associated power, heating, and cooling for temporary electronic equipment space while present equipment rooms are being renovated.

The power and the Heating Ventilation and Air Conditioning (HVAC) at many of the towers receiving this equipment must be upgraded to handle both the new and old equipment during the in-service change-out. The transition of these projects to the automated and other new equipment configurations is critical. There is no room for any more equipment in many towers; therefore, base buildings must be provided or expanded. High levels of safety, service, and efficiency in the Air Traffic operation must be maintained.

Description of Solution: Provide $14,212,000 to improve, repair and modernize ATCT/TRACON facilities which are not candidates for relocation or consolidation. Provide $3,000,000 to initiate engineering and site preparation, and integration of the automated and other new equipment into ATCTs/TRACONS. Provide for $8,000,000 for development of requirement specifications and integration design for automated systems.

Benefits: This effort will result in a smooth and orderly transition of CIP projects into FAA's air traffic control towers, minimizing disruption of the operating system. This will also improve the operational efficiency and environment of obsolete and deteriorated ATCT/TRACON facilities.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$135,107.8
FY 1993 Appropriated	73	17,158.0
FY 1994 Request	---	25,212.0
Future Requirement	---	. a/
Total	Various	$177,477.8

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Modernize Air Traffic Control Facilities (National Projects)	14	$ 8,400.0
2. Regional Projects	48	5,812.0
3. Initiate Engineering & Site Preparation; Integration and Transition Planning for Acceptance of Automated and Other New Equipment	---	3,000.0
4. Provide for Development of Requirements Specifications and Integration Design for Automated Systems	---	8,000.0
Total	Various	$25,212.0

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a/ Requirements are based on activity levels and local situations that are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2816 Fiscal Year 1994 CIP: 44-07

Program Title: Emergency Transceiver Replacement

Amount: $3,000,000 Location: Various

Basis for Request: Provide portable emergency transceiver equipment for the air traffic control tower (ATCT) and terminal radar approach control (TRACON) facilities. Procure state-of-the-art, reliable, and supportable equipment to replace aging equipment currently in service. Portable transceivers are required for providing emergency communication capability in ATCTs and TRACONs.

Description of Problem: Ninety percent of the emergency transceivers currently in use at the ATCT and TRACON facilities are antiquated and obsolete tube-type equipment. The remaining 10 percent of the facility equipment does not meet current radio frequency interference requirements. It is essential that this communications equipment be replaced to provide safe air traffic control services that will significantly decrease both maintenance requirements and interference problems.

Description of Solution: Provide $3,000,000 to procure emergency transceivers for ATCT facilities. This effort ultimately will provide approximately 1,500 VHF and UHF transceivers for approximately 350 ATCT facilities and 150 TRACON facilities, and the related equipment, spares, and services.

Benefits: This procurement will provide the Federal Aviation Administration the upgrade necessary to maintain emergency communications equipment for the ATCTs and TRACONs while reducing maintenance requirements and substantially decreasing radio interference problems.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	3,000.0
Future Requirement	---	48,600.0
Total	Various	$51,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	Various	$3,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B17 Fiscal Year 1994 CIP: 32-21

Program Title: New Denver Airport Establishment

Amount: $1,200,000 Location: 1

Basis for Request: The need to establish new major airports to increase the capacity of the national airport system is essential for the growth and enhancement of air commerce in the United States.

Description of Problem: The Denver Stapleton Airport cannot meet current airport operations or accommodate future growth. Due to physical constraints and environmental problems, expansion of the existing airport was not deemed practical. Consequently, the decision to build a new airport was made. The city has completed site selection, environmental impact studies, and land acquisition. Construction of the new airport is on schedule for opening in 1993. Among the total airport requirements are the establishment of new air traffic control facilities, airport surveillance radar (ASR) system, instrument landing systems, approach lights, weather sensors, navigational aids, communications, and other capital investment plan systems and equipment.

Description of Solution: Provide $1,200,000 funding for facilities and equipment support at the New Denver Airport. This funding will provide for transition of operations from Stapleton to the new airport, the decommissioning of Stapleton, the clean-up and restoration of Stapleton and recovery of usable systems/equipment, and the relocation and re-establishment of FAA field maintenance activities.

Benefits: Establishment of a new airport in the Denver, Colorado, area will increase the air traffic system capacity, reduce delays, enhance air traffic safety, and provide for future expansion.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$145,085.2
FY 1993 Appropriated	---	24,000.0
FY 1994 Request	1	1,200.0
Future Requirement	---	2,800.0
Total	1	$173,085.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Regional Site Work	1	$1,200.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B18 Fiscal Year 1994 CIP: 22-12

Program Title: Terminal Voice Switch Replacement (TVSR)

Amount: $26,600,000 Locations: 61

Basis for Request: Air traffic controllers in the terminal environment require a reliable voice switching capability to allow voice communication with aircraft through radios or voice communication with other ground based air traffic facilities through a telephone network. The integrated air traffic control terminal voice switch provides the means through which voice communication paths are selected and established.

Description of Problem: Over 50 percent of the 456 voice switches in operation at air traffic terminals are leased obsolete electromechanical switches which were installed in the 1960s and 1970s. These switches must be replaced before the leases expire. More importantly, these switches should be replaced before they jeopardize the safe and efficient control of commercial and general aviation aircraft. Many of the systems currently installed are unsupportable and replacement switches are mandatory to ensure continuation of effective control services. Replacement of these electromechanical switches with modern equipment will significantly improve the operational and maintenance aspects of terminal operations.

Description of Solution: Provide $21,600,000 to procure an additional 61 large systems from an existing contract, $4,000,000 to support the procurement of Operational Support Telephone Systems (OSTS) which must be replaced in conjunction with the replacement of electromechanical voice switching equipment, and $1,000,000 for concept exploration in replacing obsolete government-owned switches.

Benefits: This procurement will provide the Federal Aviation Administration the capability to continue reliable voice communications in support of air traffic terminal operations.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	89	$28,201.3
FY 1993 Appropriated	66	20,500.0
FY 1994 Request	61	26,600.0
Future Requirement	31	16,800.0
Total	247	$92,101.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Centrally Procured Equipment and Services	61	$25,000.0
2. Program Management	---	1,600.0
Total	61	$26,600.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B19 Fiscal Year 1994 CIP: 2S-08

Program Title: Radio Control Equipment (RCE)

Amount: $14,900,000 Location: Various

Basis for Request: This project replaces present radio signaling and tone control equipment and improves operational performance and reduces maintenance costs. The new control equipment will eliminate operational deficiencies and improve air-ground communications services. This equipment will be used for controlling radio assets at remote center air/ground communications facility (RCAG), remote transmitter/receiver (RTR), and remote communications outlet (RCO) facilities.

Description of Problem: The existing tone control equipment incorporates obsolete tube/relay devices that have functional system deficiencies, such as push-to-talk keying delays, false transfers of equipment, no main/standby equipment status readback, improper impedance switching, and low unit reliability. The existing system is not transparent to user demands and reconfigurations, which leads to lowered productivity and inefficiency. The new equipment must meet current and future requirements of the Air Route Traffic Control Center (ARTCC), Terminal Radar Approach Control (TRACON) and Automated Flight Service Station (AFSS).

Description of Solution: Provide $14,900,000 for procurement of RCE that is of a singular design, modular, flexible, and expandable to meet current and future Capital Investment Plan (CIP) requirements for the ARTCC/RCAG, TRACON/RTR, and AFSS/RCO facilities. Current requirements will focus on replacing obsolete tube/relay and solid state/relay devices; future requirements will focus on ARTCC expansion needs, TRACON consolidation needs for radio control equipment. Future requirements will satisfy the interfaces with the Voice Switching and Control Equipment (VSCE) and radio interfaces at the RCAGs, RTRs and RCOs. The requested funding will be used to continue procurement of a RCE which will be logistically supported and satisfy the existing requirement.

Benefits: The RCE will have two-way control data channels, in-band signaling, logistical support (Maintenance and Supply) and Maintenance indication. The replacement of obsolete radio control equipment will eliminate operational deficiencies and improve air-ground service.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$223,700.0
FY 1993 Appropriated	---	8,000.0
FY 1994 Request	---	14,900.0
Future Requirement	---	23,500.0
Total	Various	$270,100.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	Various	$14,900.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B20 Fiscal Year 1994 CIP: 46-16

Program Title: Terminal Communications Improvement

Amount: $2,062,000 Location: Various

Basis for Request: The FAA must continually upgrade and improve various terminal communications facilities and equipment to satisfy operational requirements. Communications facilities, such as remote transmitter/receiver sites, provide the means for continuous reliable air/ground communications for air traffic control service.

Description of Problem: Additional operating positions require both new communications equipment and additional flight data input/output devices in response to increased traffic and airspace realignments. Existing communications facilities must be improved, expanded, or relocated to assure continuation of high quality communications, which is essential to maintain an efficient air traffic control system.

Description of Solution: This is a collection of improvement projects required to keep the national airspace system facilities efficient and up-to-date. Provide $2,062,000 to establish or relocate remote transmitter/receiver (RTR) facilities, establish automatic terminal information systems, establish flight data input/output equipment, and provide in-service engineering to improve and maintain the air traffic control communications system.

Benefits: Air-to-ground and inter/intra facility communications are the most important single entity in the performance of air traffic control. The projects are for correction of site specific problems or deficiencies, airspace restructuring, site preparation, and terminal in-service engineering.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$64,162.7
FY 1993 Appropriated	---	2,062.0
FY 1994 Request	---	2,062.0
Future Requirement	---	_______ a/
Total	Various	$68,286.7

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Establish/relocate RTR facilities	2	$1,155.0
2. Automatic Terminal Information Service	2	80.0
3. Provide Flight Data Input/ Output	1	52.0
4. In-Service Engineering	---	775.0
Total	5	$2,062.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B21 Fiscal Year 1994 CIP: 46-26

Program Title: Employee Safety for Airport Traffic Control Towers (ATCT)

Amount: $36,000,000 Location: Various

Basis for Request: This funding is requested to bring ATCTs into compliance with employee fire life safety standards as required by Executive Order 12196, Occupational Safety and Health Program for Federal Employees. In addition, Environment Protection Agency regulations require that asbestos be abated whenever it is disturbed as a result of construction. Compliance with these standards will eliminate conditions such as exposure to asbestos containing building materials (ACBM) and reduce the risk of fatalities or serious injuries in the event of fire.

Description of Problem: The Department of Labor, Occupational Safety and Health Administration (OSHA), requires FAA to bring ATCTs into compliance with FAA Order 3900.32 and 3910.5 for fire life safety. Fire safety deficiencies exist in approximately 90 percent of the ATCTs and ACBM exist in most ATCTs erected prior to 1978. Examples of fire safety deficiencies to be corrected are: insufficient smoke/fire alarm systems, unprotected exits, and improper type or quality of fire extinguishers. ACBM will be affected at 30 percent of the facilities due to fire safety alteration projects. Asbestos abatement required to mitigate the hazards will be undertaken as part of fire safety projects.

Description of Solution: Provide $36,000,000 to keep ATCTs in compliance with fire life safety corrections for employees. This funding will allow the FAA to complete fire safety corrections at all ATCTs by the end of FY 1994. All ATCTs will be surveyed for ACBM and mandatory actions taken. ACBM corrections and actions will continue through FY 1996.

Benefits: This funding will allow the FAA to comply with OSHA employee fire life safety requirements and to begin actions to eliminate asbestos exposure in all standard and non-standard ATCTs. Asbestos exposure can lead to the closing of critical facilities and should be considered a high priority requirement.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$25,852.5
FY 1993 Appropriated	---	18,800.0
FY 1994 Request	---	36,000.0
Future Requirement	---	a/
Total	Various	$80,652.5

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Correct Fire Life Safety Deficiencies in ATCTs	Various	$36,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B22 Fiscal Year 1994 CIP: 24-14; 34-14

Program Title: Airport Surface Detection Equipment (ASDE)

Amount: $12,600,000 Location: Various

Basis for Request: The original ASDE-3 program provided for the establishment of 30 ASDE-3 systems and three additional sensors to satisfy the requirement for three dual sensor systems. A contract was awarded in 1985 and an option was exercised in 1988 to provide the additional sensors. Additional funding is required to provide for a remote tower configuration at nine sites where the existing air traffic control tower (ATCT) does not have the structural integrity to support the ASDE on top of the ATCT. Funding is required to provide for engineering and/or design of post-production parts no longer manufactured by various subcontractors and additional depot spares based on updated reliability information. Additional funding is required for software upgrades to improve operational functionality.

Description of Problem: An architectural analysis of existing ATCTs indicates that several do not have the structural integrity to support the installation of the ASDE-3 in the local tower configuration (on top of the ATCT) as originally planned. Since design of the ASDE-3, certain commercially supplied components are no longer manufactured due to vendors' restructuring. Parts that cannot be procured through alternate sources that perform the original form, fit and function must be redesigned to fit the ASDE-3 functional configuration. Additionally, field operational testing revealed software modifications necessary to augment ASDE-3 functionality.

Description of Solution: Provide $8,000,000 in FY 1994 to provide for a change in the ASDE-3 from a local tower to a remote tower configuration at nine sites. Provide $2,000,000 for integrated logistics (supply) support and $2,600,000 to provide software upgrades to improve reliability and operational capability.

Benefits: The ASDE program will provide positive surveillance and assist in expediting aircraft flow during restricted visibility conditions, will assist the ground controller in preventing collision situations, and will allow an orderly movement of aircraft and ground vehicles on the airport surface when visibility restrictions prevent the controller, pilots, or vehicle operators from seeing other ground traffic on the airport.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	33	$138,500.0
FY 1993 Appropriated	11	52,500.0 a/
FY 1994 Request	---	12,600.0
Future Requirement	---	12,000.0
Total	Various	$215,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. Configuration Changes	---	$ 8,000.0
2. Logistics Support	---	2,000.0
3. Software Upgrades	---	2,600.0
Total	Various	$12,600.0

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a/ Includes $49,500,000 Congress provided in FY 1993 to procure 10 ASDE-3 radars at qualifying locations, and 1 ASDE-3 system for the FAA Technical Center.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B23 Fiscal Year 1994 CIP: 32-06

Program Title: ARTS IIA Mode C Intruder Capability and Video Compression

Amount: $26,100,000 Location: Various

Basis for Request: The expanded Automated terminal System (ARTS) IIA capacity will provide the automation system capacity to meet air traffic and routine functional growth requirements until replaced by the Advanced Automation System (AAS). The expanded capacity will also include mode c intruder (MCI) functionality which expands conflict alert functions to include air traffic controller warnings of potential conflicts between aircraft under positive air traffic control (associated aircraft) and aircraft not under positive air traffic control (unassociated aircraft). Current conflict alert functionality requires both aircraft to be under positive air traffic control.

Description of Problem: Air traffic growth and routine automation system functionality growth has left the current ARTS IIA system with less than ten percent capacity reserve. The reserve is insufficient to accommodate processing and display of future air traffic growth and routine functional enhancements until ARTS IIA is replaced by the AAS and cannot support MCI. Air traffic growth has also resulted in an increase in potentially hazardous situations arising between controlled and uncontrolled aircraft.

Description of Solution: Provide $26,100,000 in FY 1994 to continue the procurement of ARTS IIA hardware and software upgrades that will meet the automation system processing and display capacity growth requirements and incorporate MCI functionality of automatic conflict alerts for associated/unassociated MCI aircraft pairs equipped with Mode C transponders.

Benefits: The expanded capacity will provide automation system service to the air traffic controller without system degradation in the face of increasing air traffic and system functionality growth. The implementation of MCI functionality will further assist the air traffic controller by expanding the conflict alert function and provide increased safety by avoiding potentially hazardous situations when an unassociated aircraft is projected to intrude into airspace of an associated aircraft.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	9,500.0
FY 1994 Request	---	26,100.0
Future Requirement	---	9,400.0
Total	Various	$45,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. MCI Software/Expand Capacity	---	$12,200.0
2. RADS Video Compression	---	11,100.0
3. FAA/Contractor Support	---	2,800.0
Total	Various	$26,100.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2B24 Fiscal Year 1994 CIP: 44-60; 46-16

Program Title: Terminal Radar Systems - Improve

Amount: $9,395,000 Locations: Various

Basis for Request: The airport surveillance radar systems provide the means for determining aircraft positions approaching, departing, and passing through terminal areas.

Description of Problem: The terminal radar surveillance systems at various locations need minor improvements and/or modifications that include state-of-the-art changes or relocations to correct deficiencies. In addition, support must be provided to solve problems which occur in the operational system.

Description of Solution: Provide $5,300,000 to continue ASR improvements and radar relocations. Provide $4,095,000 for necessary improvements and support to solve operational problems and to provide digital charting.

Benefits: This is a collection of improvement projects required to keep the National Airspace System facilities efficient and up-to-date. The projects are mainly for correction of site specific problems or deficiencies.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$59,753.8
FY 1993 Appropriated	---	11,368.0
FY 1994 Request	---	9,395.0
Future Requirement	---	. a/
Total	Various	$80,516.8

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. ASR Relocations	---	$5,300.0
2. Provide Radar Remoting	---	68.0
3. Provide Digital Charting	---	2,200.0
4. Provide Terminal Radar In-Service Engineering	---	1,827.0
Total	Various	$9,395.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2C01 Fiscal Year 1994 CIP: 23-01; 26-10; 33-20; 43-03; 43-04

Program Title: Flight Service Station (FSS) Modernization

Amount: $8,800,000 Location: Various

Basis for Request: Installation of Model 1 Full Capacity (M1FC) systems in AFSSs is necessary to ensure continued modernization of the AFSSs, retrofitting the Model 1 systems to M1FCs and the installation of the upgraded system in the remaining AFSSs. The M1FC design will support total consolidation of the existing non-automated facilities and is a scaled down version of the Model 2 system originally planned but does not contain weather graphics or the direct access terminals. Additionally, AFSS buildings need configuration changes to accommodate additional personnel and equipment and to address heating, ventilation, and air conditioning (HVAC) deficiencies.

Description of Problem: Previous funding designed, developed, and began deployment of M1FCs in the AFSSs. Continued deployment is necessary to complete fielding of all M1FCs in order to automate all AFSSs and to train remaining personnel. In order to maintain ongoing deployment progress, urgent contract changes to the delivery schedule and configurations of Model 1 and M1FC sites resulted in unexpected costs to the program. Funds are also necessary to close out the contract. In addition, AFSS buildings need physical changes to address HVAC problems. Changes in staffing and space standards and introduction of unanticipated equipment, such as power conditioning systems (PCSs), require more space in AFSSs. Funding is also needed to meet new international weather data presentation formats for Meteorological Aviation Reports (METARS).

Description of Solution: Provide $8,800,000 for Flight Service Station Automation, METARS, and AFSS Space Support. $3,600,000 is required to fund the existing FSAS contract from the target price towards the ceiling price. $800,000 is to fund required interface software changes to meet U.S. government commitments to change flight service data processing system (FSDPS) software to accommodate changes in METAR formats. $4,400,000 will be used to modify or expand AFSS buildings to accommodate required operational and administrative space changes and to correct HVAC problems.

Benefits: Completing M1FC installations will result in improved dissemination of aviation information and weather services, thereby improving flight safety and fuel savings. Changes to AFSS buildings will improve working conditions for flight service specialists and provide a safe and efficient operational environment.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$367,800.0
FY 1993 Appropriated	---	2,200.0 a/
FY 1994 Request	---	8,800.0
Future Requirement	---	119,100.0
Total	Various	$497,900.0

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a/ The FSAS operational and supportability implementation system (OASIS) funding ($1,800,000), previously contained in this FSS modernization budget item, is now reflected in the OASIS budget item.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. FSS Automation	---	$3,600.0
2. AFSS Support Space	---	4,400.0
3. METAR	---	800.0
Total	Various	$8,800.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2C02 Fiscal Year 1994 CIP: 24-11

Program Title: Direction Finder (DF) Network Program

Amount: $10,000,000 Locations: 60

Basis for Request: The network of very high frequency (VHF) direction finder (DF) facilities provides emergency assistance to lost or disoriented pilots. This system has contributed significantly to the safety of human lives and property.

Description of Problem: DF service is required in the National Airspace Systems to meet operational needs for coverage down to 2,000 feet above terrain along major visual flight rule (VFR) flyways in non-radar areas. To accommodate this requirement, replacement of some existing unreliable systems is necessary.

Description of Solution: Provide $10,000,000 to fund for system implementation tasks necessary to deploy the remaining 60 of 115 first-buy systems and remaining upgrades.

Benefits: Replacement of the system with current state-of-the-art equipment will alleviate the logistics/maintenance support problems and also improve operational capabilities. The remoting of systems will allow consolidating flight service stations into the Automated Flight Service Stations.

APPROPRIATION SUMMARY

	Location	Amount ($000)
Appropriated (FY 1982-1992)	115	$86,463.7
FY 1993 Appropriated	---	11,043.0
FY 1994 Request	---	10,000.0
Future Requirement	---	. a/
Total	115	$107,506.7

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
DF Implementation	60	$10,000.0

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a/ Future requirements will be redefined.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2C03 Fiscal Year 1994 CIP: 23-09

Program Title: Automated Surface Observing System (ASOS)

Base : $19,900,000
Investment : 10,000,000
Total Amount: $29,900,000

Location: 106

Basis for Request: Accurate, reliable weather information is an integral element in the safe and efficient utilization of the nations airspace. The FAA is coordinating the automated surface observing system (ASOS) development and procurement efforts with the National Weather Service and is financially committed to funding the balance of this program as scheduled.

Description of Problem: There is a continuing need for weather observations at locations where existing flight service stations are scheduled to be consolidated or relocated to an automated flight service station (AFSS). Personnel assigned to these locations will be transferred and will not be available to continue manual weather observations. Continuation of manual weather observations using contract personnel is not cost effective. There is also a need to provide a 24 hour continuous update of the weather elements reported at towered airports which either do not report all the parameters ASOS is capable of or are staffed for less than 24 hours per day. Additionally, existing weather message formats from ASOS do not conform with current international standards.

Description of Solution: Provide $27,400,000 to continue a multiyear program to procure and install 106 ASOS systems, and their related site preparation and program management costs. The National Oceanic and Atmospheric Administration (NOAA) will procure, install, and maintain this equipment at all locations. In addition, $2,500,000 is required to fund the ASOS, automated weather observing system (AWOS) and AWOS data acquisition system (ADAS) interfaces with the international meteorological aviation reports (METARS).

Benefits: The principal benefits to be realized from implementing ASOS are the continued capability for IFR flight operations and the improved continuous observation capability at a significantly reduced cost. These systems will provide the user with high quality real time weather information by various means, including the use of computer-generated voice outputs and interface to national weather data communication networks. Weather parameters will be updated each minute to provide for rapid observation of changing weather conditions. Specific unique ASOS displays will be installed in control towers to keep air traffic personnel abreast of current weather. Based on the anticipated unit cost for ASOS and current cost of contract weather observations service, it is expected that FAA can recover ASOS costs within two years.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	244	$144,212.0
FY 1993 Appropriated	110	26,000.0
FY 1994 Request	106	29,900.0
Future Requirement	77	35,200.0
Total	537	$235,312.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. ASOS Procurement (NWS)	106	$22,600.0
2. VHF Radios	---	910.0
3. Program Office Support	---	3,890.0
4. Meteorological Aviation Rpts (METARS)	---	2,500.0
Total	106	$29,900.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2C04 Fiscal Year 1994 CIP: 23-04

Program Title: Weather Message Switching Center Replacement (WMSCR)

Amount: $3,600,000 Location: 2

Basis for Request: The weather message switching center (WMSC) system located at the national communications center (NATCOM) facility is approaching obsolescence. The WMSC provides a central FAA communications point for the collection, storage, and distribution of weather data and notices to airmen (NOTAM) data. The WMSCR program will replace the WMSC with a system that supports all the functions being performed by the WMSC. It will consist of nodes located at the Salt Lake City and Atlanta National Aviation Weather Processor facilities.

Description of Problem: Previous funding designed, developed, installed, and provided training for the WMSCR system. Additional funding is requested to provide contractor maintenance, engineering support, software modifications, reconfiguration of software weather data presentation formats to meet international standards, and to support closing the obsolete NATCOM facility.

Description of Solution: Provide $1,800,000 to fund maintenance and engineering support software modification costs for WMSCR; and $1,000,000 to fund WMSCR software development/modifications to implement the new international meteorological aviation reports (METARS) format. In addition, $800,000 will be used to support closing the NATCOM facility.

Benefits: The funding of these activities will provide maintenance and engineering support for the two deployed WMSCR sites, allowing full implementation of the WMSCR program, and will complete closing the NATCOM facility.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	2	$25,900.0
FY 1993 Appropriated	---	3,000.0
FY 1994 Request	---	3,600.0
Future Requirement	---	0.0
Total	2	$32,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. WMSCR Maintenance/Support	---	$1,800.0
2. METARS	---	1,000.0
3. NATCOM Closure	---	800.0
Total	Various	3,600.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2C05 Fiscal Year 1994 CIP: 43-13

Program Title: Digital Altimeter Setting Indicator (DASI) Replacement

Amount: $1,500,000 Locations: 50

Basis for Request: The FAA is responsible for providing ATC towers throughout the NAS with the capability to transfer local barometric pressure measurements to pilots for altimeter adjustment to true altitude. This allows the pilots to adjust their aircraft altimeters to correspond to the airport elevation where they intend to land or depart. The pilots are also provided with periodic en route updates to maintain the correct distance between their aircraft and any obstacles.

Description of Problem: Barometric pressure measurement systems are currently installed in ATC towers throughout the NAS. There are four different system configurations currently in use which were deployed between 1976 and 1983. These currently deployed DASI systems have exceeded their expected service life; experience more and more failures; no longer have complete replacement part support from the manufacturers; and have obsolete systems capabilities.

Description of Solution: The DASI Replacement program will provide for DASI systems using state-of-the-art technology. Full engineering and logistics documentation and requirements will be procured. The new DASI systems will also provide backup capability for ASOS, drive more than 10 remote display units, and integrate the decoder function into the remote display unit. Provide $1,500,000 in FY 1994 to procure DASI replacements at 50 towers.

Benefits: Procuring the new DASI will save a net of $6,500,000 in O&M funding. In addition, flight delays will be avoided by allowing for lower landing minima. New DASIs will be fully supportable and meet all current technical requirements.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	50	1,500.0
Future Requirement	125	4,800.0
Total	175	$6,300.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. Procure DASI Replacements	50	$1,000.0
2. Support/Engineering	---	500.0
Total	50	$1,500.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2C06 Fiscal Year 1994 CIP: 43-22

Program Title: FSAS Operational and Supportability Implementation System (OASIS)

Base : $12,600,000
Investment : 2,000,000
Total Amount: $14,000,000

Locations: 63

Basis for Request: Studies on the hardware supportability, spare part availability, and alternative actions showed that several key components at the AFSS's would become unavailable and unmaintainable by FY 1996 and at the Flight Service Data Processing System (FSDPS) by FY 1998.

Description of Problem: The system hardware has already passed its planned lifetime. The AFSS workstations and their supporting peripherals have the shortest remaining life. Suppliers who designed and built many chips and boards have left the business and no resupply sources exist. These designs are based on many subcomponents, which are experiencing high failure rates. The hardware requires constant maintenance attention to keep operational. Additionally, many deficiencies are present in the existing operational software. These deficiencies, consisting of operating system limitations, many human-machine inefficiencies, and system reliability and response times, preclude efficient personnel and equipment utilization.

Description of Solution: The $14,600,000 will encompass installations at each AFSS, the Academy and the Technical Center. Full implementation of the Leased Flight Service System will be accomplished through a phased lease, and will provide functional capabilities equivalent to existing AFSSs, FSDPSs, AWPs, and Duats. The initial phase of the lease will be to replace existing equipment at the AFSSs.

Benefits: This leased system will provide for ongoing logistical and operational support, enabling Flight Service Specialists to more efficiently produce weather and flight information for pilots.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	1,800.0 a/
FY 1994 Request	63	14,600.0
Future Requirement	---	. b/
Total	63	$16,400.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Supportability COTS Hardware and Initial COTS Operational Software	63	$14,600.0

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a/ FY 1993 funds were requested under the FSS Modernization budget item for FSAS supportability component upgrades and spare parts. These activities are consistent with the scope and intent of the FSAS OASIS program.

b/ Future requirements will be based upon fulfilling operational requirements through a leased service, which are presently being defined.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2C07 Fiscal Year 1994 CIP: 46-16

Program Title: Flight Service Facilities Improvement

Amount: $3,426,000 Location: Various

Basis for Request: Flight service facilities must be upgraded and improved on a continuing basis to provide the level of service required by users and to meet current and future operational requirements.

Description of Problem: New equipment must be installed and additional communication outlets provided, or existing facilities and equipment must be improved, expanded, or relocated to assure the continuance of high quality flight services.

Description of Solution: Provide $3,426,000 for communication facility establishment and other minor improvements.

Benefits: This is a collection of improvement projects required to keep the National Airspace System facilities efficient and up-to-date. The projects are mainly for correction of site specific problems or deficiencies.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$22,020.2
FY 1993 Appropriated	---	1,968.0
FY 1994 Request	---	3,426.0
Future Requirement	---	. a/
Total	Various	$27,414.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Improve FSS	---	$ 836.0
2. Provide Additional Communication Equipment	---	755.0
3. Replace FSS Buildings	---	1,310.0
4. Provide FSS In-Service Engineering	---	525.0
Total	Various	$3,426.0

---

a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D01 Fiscal Year 1994 CIP: 24-03; 44-14

Program Title: Very High Frequency Omnidirectional Radio Range (VOR) With Distance Measuring Equipment (DME)

Amount: $15,100,000 Location: Various

Basis for Request: VOR, DME, and VORTAC facilities are major components of the air navigation system and are used for en route air navigation and approach by pilots to conduct safe and efficient flights and landings.

Description of Problem:

a. Relocate VOR/DME-Lease expirations, excessive deterioration of signal propagation, and changes in operational airways structure necessitate the relocation of existing VOR/DME facilities to more optimal locations.

b. Convert VOR to Doppler VOR-VOR facilities are being adversely affected by the erection of structures, high power cross-country transmission lines or similar actions beyond the lease protected clear zones. These VORs, which have imposed flight inspection restrictions, can be restored to full service by converting to the Doppler VOR configuration.

c. Sustain VOR/VORTAC-Enhancements are required to ensure that VOR/DME and VORTAC facilities are able to function as intended. Such enhancements include: the installation of retrofits to be compatible with Remote Maintenance Monitoring, modification of TACAN equipment to be compatible with battery backup systems, providing batteries for VORTAC battery backup operation, removal and disposal of engine generator/underground fuel tanks and various site specific efforts.

Description of Solution: Provide $15,100,000 for VOR/DME relocations, conversion of conventional VORs to Doppler VOR, and sustain existing VOR/DME facilities.

Benefits: The projects will improve operations and facilities performance, provide added capabilities and promote safety.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$185,438.3
FY 1993 Appropriated	---	12,577.0
FY 1994 Request	---	15,100.0
Future Requirement	---	. a/
Total	Various	$213,115.3

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. VOR/DME Relocation	6	$ 4,734.0
2. Convert VOR to Doppler VOR	20	8,387.0
3. Sustain VOR/VORTAC	25	1,979.0
Total	51	$15,100.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D02 Fiscal Year 1994 CIP: 24-10; 44-33

Program Title: Approach Lighting System Improvement Program (ALSIP)

Amount: $1,700,000 Locations: 3

Basis for Request: Many of the current FAA approach lighting facilities lack energy-efficient components and utilize rigid structural steel approach light towers for the required lighting plane.

Description of Problem: The existing steel approach light towers are rigid and can severely damage aircraft in the event of an impact. Replacing existing towers with lightweight, frangible materials that collapse or break apart upon impact will reduce aircraft damage if impact occurs during departure or landing. Many of the approach lighting systems also contain electrical components which are not energy efficient and require replacement.

Description of Solution: Provide $1,268,000 for this safety-related program to modify the present approach lighting systems by procuring lightweight, frangible structures and energy-efficient electrical components in 3 locations. Also, provide $432,000 for installation of two previously delivered systems.

Benefits: Lightweight, frangible approach light towers will help reduce the severity of accidents and will standardize the design of approach lighting systems (ALS) used at airports. Additionally, replacing electrical equipment at existing high-intensity ALS facilities serving Category I runways with MALSR's will result in reduced energy consumption.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	304	$115,838.9
FY 1993 Appropriated	17	6,820.0
FY 1994 Request	3 a/	1,700.0
Future Requirement	---	. b/
Total	Various	$124,358.9

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. ALSF-2	1	$ 854.0
2. MALSR Sites	2	846.0
Total	3	$1,700.0

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a/ Two additional ALSF-2 locations are being provided installation funds only. Equipment was previously delivered.

b/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D03 Fiscal Year 1994 CIP: 44-22

Program Title: Instrument Landing System (ILS) Replacement - (Mark 1A, 1B, and 1C)

Amount: $20,000,000 Location: Various

Basis for Request: The Federal Aviation Administration (FAA) has the statutory authority to establish, operate, and maintain the precision landing capability at qualified airports within federally controlled airspace. The precision landing capability is a critical component of all-weather aviation system because this capability allows aircraft to approach and land during adverse weather conditions. In order to provide the precision landing capability to aircraft, the position and range of the aircraft relative to the runway must be calculated; precise three-dimensional approach and landing guidance information must be determined; and visual navaids, which provide the pilot a visual reference to the runway, must be employed. This precision capability is principally provided by the Instrument Landing System (ILS).

Description of Problem: Contained within the current ILS operational inventory are approximately 180 older CAT 1 Mark 1A, 1B and 1C ILSs which have been in service since the 1970s and are nearing the end of their life-cycles. The reliability is degrading as the equipment ages beyond its designed life. Few off-the-shelf sources of replacement parts exist to support these systems (in particular the Mark 1As) since the ILS equipment manufacturers have ceased to construct parts conforming to 20+ year old transistor technology, and as a result, replacement parts are difficult to obtain. These systems are not equipped with remote maintenance monitoring and accordingly do not comply with the FAA maintenance requirements and policies.

Description of Solution: The funds requested in FY 1993 would replace 27 Mark 1A ILS systems with modern, supportable ILSs equipped with remote maintenance monitoring systems. Provide $20,000,000 in FY 1994 to begin a service life extension plan (SLEP) to modernize the remaining Mark 1Bs and 1Cs.

Benefits: Continuing effective ILS operation at those qualified locations will satisfy the requirement for a precision approach capability, and relieve airports facing capacity problems. The benefit of this SLEP is to provide supportable and maintainable Mark 1Bs and 1Cs while substantially reducing the cost of a total replacement program. Using this SLEP approach, the program savings are estimated to be $63,100,000 versus replacing in total all Mark 1Bs and 1Cs.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	0.0
FY 1993 Appropriated	27	13,500.0
FY 1994 Request	---	20,000.0
Future Requirement	---	13,500.0 a/
Total	Various	$47,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Upgrade ILS	Various	$20,000.0

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a/ Future requirement includes Mark 1A installation funds.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D04 Fiscal Year 1994 CIP: 34-06

Program Title: Instrument Landing System (ILS) - Establishment

Amount: $36,174,000 Location: Various

Basis for Request: The Federal Aviation Administration has the statutory authority to establish, operate, and maintain the precision landing capability at qualified airports within federally controlled airspace. The precision landing capability is a critical component of all-weather aviation system because this capability provides the means to allow aircraft to approach and land during adverse weather conditions. In order to provide the precision landing capability to aircraft, the position and range of the aircraft relative to the runway must be calculated, precise three-dimensional approach and landing guidance information must be determined and visual navaids which provide the pilot a visual reference to the runway must be employed.

Description of Problem: The ILS establishment program was terminated in 1982 when the microwave landing system was adopted as the precision landing system for the National Airspace System beyond the year 2000. However, the FAA determined that there was an immediate need for precision approach systems at large and medium hub airports and their associated reliever airports as an interim solution prior to MLS implementation. The FAA MLS Transition Policy permits limited ILS establishments until sufficient MLS's are deployed. This is the fifth year of a multi-year program.

Description of Solution: Provide $36,174,000 to procure 15 modern supportable ILS's and associated equipment as detailed below. Installation costs have been mostly deferred to a future year.

Benefits: Establishment of ILS's and associated equipment at qualified locations will satisfy requirements for precision approach capability, and relieve airports facing capacity problems. Associated equipment may include medium intensity approach lighting system with runway alignment indicator lights (MALSR), distance measuring equipment (DME), runway visual range (RVR), and approach lighting system with sequence flashers (ALSF-2).

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$69,926.8
FY 1993 Appropriated	---	21,500.0
FY 1994 Request	---	36,174.0
Future Requirement	---	. a/
Total	Various	$127,600.8

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. CAT I w/MALSR	4	$ 4,380.0
2. CAT I w/DME/MALSR	1	1,380.0
3. CAT II w/ALSF-2	2	5,696.0
4. CAT III w/ALSF-2/RVR	3	9,183.0
5. CAT III w/ALSF-2/DME	2	6,330.0
6. CAT III w/ALSF-2/DME/RVR	1	3,454.0
7. CAT III w/ALSF-2	2	5,751.0
Total	Various	$36,174.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D05 Fiscal Year 1994 CIP: 34-09

Program Title: Visual Navaids

Amount: $6,310,000 Location: 34

Basis for Request: Visual navaids such as precision approach path indicator (PAPI) systems will furnish the pilot with visual approach slope information to provide guidance for safe descent. Runway-end identification lights (REIL) enable pilots to make stabilized descent and approach-slope clearance over obstructions and quickly identify the runway threshold without instruments aboard their aircraft.

Description of Problem: A pilot's visual identification of the location of the approach end of the runway can be obscured, distracted, or confused by a variety of environmental conditions. Some of these conditions are caused by high ambient light conditions, such as brightly lighted freeways or boulevards which look like runways, or highly lighted residential, industrial, or shopping areas which overwhelm the lighting of the approach end of the runway. PAPI's provide visual approach slope information for use during the visual flight rule (VFR) weather conditions.

Description of Solution: Provide $6,310,000 to establish PAPI's, REIL's, and additional facilities for straight-in nonprecision approaches (NPA's) and retrofit medium intensity approach lighting systems with runway alignment indicator lights (MALSRs) with threshold lights.

Benefits: The precision path indicators (PAPI) and runway end indicator approach lights (REIL) and upgraded MALSR's enhance safety and regularity of operations during landing operations.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$137,039.0
FY 1993 Appropriated	48	17,224.0
FY 1994 Request	34	6,310.0
Future Requirement	---	. a/
Total	Various	$160,573.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Establish PAPI	17	$ 3,001.0
2. Add PAPI for NPA's	9	1,565.0
3. REIL	5	917.0
4. Add Threshold Lights	1	159.0
5. DME for NPA's	2	668.0
Total	34	$6,310.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D06 Fiscal Year 1994 CIP: 43-12

Program Title: Low Level Windshear Alert System (LLWAS) - Upgrade to Phase III

Amount: $2,200,000 Location: Various

Basis for Request: Severe windshear/microburst conditions occurring at low altitude near airports pose a significant threat to aircraft encountering them during takeoff or landing. Windshear conditions are common in the United States, especially in areas where thunderstorms are frequent. Major aircraft accidents in New Orleans (1982) and Dallas/Fort Worth (1985) have been attributed to low-level windshear events. The low level windshear alert system (LLWAS) monitors the airport area and alerts pilots, through the air traffic controllers, when hazardous windshear conditions are detected. At present, the FAA has implemented LLWAS at 110 airports. In response to a Congressional Mandate (Public Law 97-369) and National Transportation Safety Board recommendations, the FAA has embarked on a phased process to improve the microburst detection capability of LLWAS.

Description of Problem: LLWAS-2 provides a limited microburst detection capability while retaining the sensors, masts, and most of the electronics of the LLWAS-1. The LLWAS-2 has a number of operational deficiencies, including the estimated ability to detect less than 40 percent of microbursts, with a false alarm rate of 25 percent; a coverage range that extends to only 1/2 mile from runway threshold, which limits reaction time and response options for the aircraft; and the data provided is not runway specific, nor is the type of windshear identified. Maintenance is a growing problem in that the current LLWAS equipment has been in the field for over 10 years, and is nearing the end of its useful life. Also, the LLWAS-2 sensors are disabled by freezing rain, a condition experienced at half the locations where LLWAS has been deployed.

Description of Solution: Replace all hardware at 78 operational LLWAS-2 sites with LLWAS-3 hardware. Additionally, install LLWAS-3 hardware at five new operational sites that currently have no LLWAS equipment installed (total 83 sites). The FAA has developed a prototype LLWAS-3 and deployed two systems at airports in Denver and New Orleans. By using a greater numbers of sensors, better sensor alignment, and improved algorithms, LLWAS-3 can detect over 90 percent of microbursts with a false alarm rate of less than 10 percent, and can provide usable runway-specific wind information. Coverage is improved by placing sensors out three miles beyond threshold on approach and two miles on departure for high-use runways. LLWAS-3 also provides outputs and displays which can differentiate among the types of wind shear (i.e., gust front, wind shear, microburst). To improve the maintainability of the system, the LLWAS-3 uses ice-free sensors and improved diagnostics.

The 32 LLWAS sites not upgraded to LLWAS-3 will be reviewed on a case by case basis to determine if it is cost beneficial to upgrade and resite some of the existing LLWAS-2 equipment. Funding for these upgrades will be requested in a future budget year. These costs have not been included in the total amount ($177,400,000).

For FY 1994, $2,200,000 is required for program management costs associated with solicitation activities for planned FY 1995 system contract award.

Benefits: Implementation of LLWAS-3 at 83 high exposure airports, and upgrade of LLWAS-2 at other airports as appropriate, will greatly decrease the vulnerability of aircraft to low-level wind shear hazards. The equipment will be easier to maintain and support logistically, and the outages currently caused by freezing rain will be largely eliminated.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 4,100.0
FY 1993 Appropriated	---	2,100.0
FY 1994 Request	---	2,200.0
Future Requirement	83	169,000.0
Total	Various	$177,400.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Program Office Support	Various	2,200.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D07 Fiscal Year 1994 CIP: 34-08

Program Title: Runway Visual Range (RVR)

Amount: $3,000,000 Locations: 17

Basis for Request: Runway Visual Range (RVR) equipment provides a standardized, instantaneous, and accurate method of measuring actual meteorological visibility of precision landing system equipped runways.

Description of Problem: There are various locations that meet the agency's criteria for establishment of RVR facilities and have a benefit/cost ratio of 1.0 or greater. Replacement systems will provide full CAT-II/III performance which is not currently available.

Description of Solution: Provide $3,000,000 for RVR installation at 17 locations. Funding is for site preparation and installation, sustaining program engineering needs, funding hardware/software enhancements and continuing contractor support. Systems for these locations have already been procured.

Benefits: Facilities having runways equipped with precision landing system equipment will show significant improvement in detection of runway visibility. This system will provide pilots important meteorological information prior to reaching a precision approach decision point for completion of landing or for departure.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	528	$53,721.3
FY 1993 Appropriated	---	5,000.0
FY 1994 Request	---	3,000.0
Future Requirement	---	. a/
Total	528	$61,721.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Install RVR Facilities	17	$3,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D08 Fiscal Year 1994 CIP: 44-24; 46-16

Program Title: ILS and Visual Navaid Component Sparing

Amount: $5,000,000 Locations: 17

Basis for Request: The Federal Aviation Administration has the statutory authority to establish, operate, and maintain the precision landing capability, including visual navaids, at qualified airports within federally controlled airspace. The precision landing capability is a critical component of all-weather aviation system because this capability provides the means to allow aircraft to approach and land during adverse weather conditions. In order to provide the precision landing capability to aircraft, the position and range of the aircraft relative to the runway must be calculated, precise three-dimensional approach and landing guidance information must be determined, and visual navaids which provide the pilot a visual reference to the runway must be employed.

Description of Problem: Deployed ILS equipment that utilize the localizer travelling wave antenna (TWA) are unreliable and require extensive maintenance. There are 81 TWAs deployed in the National Airspace System (NAS). There also is a requirement for spare systems for equipment restoration due to severe weather, accidents, and other incidents.

Description of Solution: Provide $5,000,000 to procure and install TWA replacement antennas at 17 locations, two emergency spare systems and provide engineering support to analyze site anomalies at specific facilities.

Benefits: ILS localizers presently using TWA antennas would experience increased reliability thereby increasing flight safety. When ILSs are destroyed due to accidents, a more timely replacement may be made. Engineering studies will provide solutions to site anomalies that may otherwise preclude the use of the ILS.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	34	$ 4,000.0
FY 1993 Appropriated	30	4,192.0
FY 1994 Request	17	5,000.0
Future Requirement	---	. a/
Total	Various	$13,192.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. Procure and Install TWA Replacement Antennas	17	$2,762.0
2. Procure Emergency Spare ILS Systems	2	1,200.0
3. Site Anomaly Engineering Investigation	---	923.0
4. Math Modeling	---	115.0
Total	Various	$5,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D09 Fiscal Year 1994 CIP: 44-23

Program Title: ILS - FAA Assumption of Airport Improvement Program Funded Systems

Amount: $3,000,000 Location: Various

Basis for Request: Instrument Landing Systems (ILSs), approach lighting systems (ALSs), and runway visual range (RVR) equipment, which are presently non-federally owned, have been congressionally mandated by Public Law 101-516 for FAA takeover.

Description of Problem: The Department of Transportation and Related Agencies Appropriations Bill for FY 1991 (P.L. 101-516, section 324) directs the FAA to take over the ownership, operation, maintenance, and associated equipment that airports acquired with federal grant assistance. Currently, 34 systems have been identified that are potentially eligible for takeover. Because some of these systems do not meet FAA specifications, logistic support will be difficult as spare parts are not in the FAA inventory. Eventually, these ILS's will be replaced with FAA current inventory equipment that would be internally supply supported and maintained thereby continuing ILS, ALS, and RVR services at these 34 airport systems.

Description of Solution: Provide $3,000,000 for initial takeover and engineering to prepare for interim FAA maintenance. If funding is not made available, these ILSs, ALS, and RVR will be decommissioned after a one-year period.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 2,000.0
FY 1993 Appropriated	---	3,500.0
FY 1994 Request	---	3,000.0
Future Requirement	---	. a/
Total	Various	$8,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Replace and Install ILSs	Various	$3,000.0

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a/ Future requirements will be determined as ILS's are identified and validated for takeover on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2D10 Fiscal Year 1994 CIP: 46-16

Program Title: Navigational and Landing Aids - Improve

Amount: $8,975,000 Location: Various

Basis for Request: Aviation navigational and landing aids must be upgraded and improved on a continuing basis to provide the level of service required by users and to meet current and future operational requirements.

Description of Problem: New equipment must be installed or existing facilities and equipment must be improved, expanded, or relocated to assure the continuance of high quality navigational and landing aids.

Description of Solution: Provide $8,975,000 for establishing or improving non-directional beacons (NDBs); improving or relocating medium intensity approach lighting systems with runway alignment indicator lights (MALSRs); relocating equipment; replacing antennas; and other minor improvements.

Benefits: This is a collection of improvement projects required to keep the National Airspace System facilities efficient and up-to-date. The projects are mainly for correction of site specific problems or deficiencies.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0 a/
FY 1993 Appropriated	---	0.0 a/
FY 1994 Request	---	8,975.0
Future Requirement	---	. b/
Total	Various	$8,975.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. Relocate Landing Aids	12	$1,656.0
2. Establish LOMs	4	528.0
3. Replace Localizer Antennas	2	603.0
4. Establish/Improve NDBs	3	729.0
5. Improve/Relocate MALSRs	2	877.0
6. Establish VOR Test Signal	4	771.0
7. Establish LDIN	1	472.0
8. Other Various Improvements	12	1,664.0
9. In-service Engineering	---	1,675.0
Total	40	$8,975.0

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a/ Items submitted in prior years would have been a part of the other navigation and landing budget items.

b/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E01 Fiscal Year 1994 CIP: 45-24

Program Title: Alaskan NAS Interfacility Communications Systems (ANICS)

Base : $9,000,000
Investment : 4,000,000
Total Amount: $13,000,000

Location: Various

Basis for Request: The Alaskan National Airspace System (NAS) Interfacility Communication System (ANICS) project provides satellite earth stations using leased transponders on communication satellites for operational communications circuits. The circuits to be covered are primarily those which are critical to provide air traffic service for the Alaskan Region. The system will also be used for general purpose interfacility communications and provide the flexibility to accommodate capital investment plan (CIP) requirements.

Description of Problem: The reliability and economy of Alaskan Region NAS interfacility communications between FAA sites must be improved to meet FAA safety and CIP objectives. The reliability of the present single-thread leased satellite interfacility communications is declining with both the number and total duration of outages on critical communication and radar circuits, nearly doubling each year since 1987. Extended outages result in the dangerous loss of critical air traffic control communications. With the increasing amount of Pacific Rim air traffic forecast for the next decade, this unreliable system is inadequate. The typical method of providing redundant communications is to lease alternate terrestrial communication routes. However, this alternative is not available in Alaska. Loss of the satellite, or it's associated terrestrial links, will have extremely adverse impacts on ATC operations and air safety since it entails the sudden loss of radar and communications coverage with all aircraft under positive (radar reinforced) air traffic control. Recovery times from a major satellite or terrestrial-link failure may take hours, days, or even weeks depending on the severity and location of the outage. Problems that interrupt the present single-thread communications network have serious and life threatening implications within the ATC system.

Description of Solution: Provide $13,000,000 to continue a multiyear project to provide in Alaska a system of redundant satellite earth stations using leased transponders on communication satellites. The FY 1994 funding will provide engineering site design, site preparation, and equipment for critical earth stations throughout the state of Alaska.

Benefits: With the ANICS systems, redundant critical routes will be created in Alaska, substantially improving NAS communications reliability. ANICS will substantially reduce the annual cost of leased communications in the Alaskan region.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$28,500.0
FY 1993 Appropriated	---	13,000.0
FY 1994 Request	---	13,000.0
Future Requirement	---	30,200.0
Total	Various	$84,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	Various	$13,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E02 Fiscal Year 1994 CIP: 46-22

Program Title: Fuel Storage Tank Replacement and Monitoring

Amount: $9,000,000 Location: Various

Basis for Request: Underground fuel storage tanks installed in the past do not meet newly established environmental standards and must be replaced and monitored.

Description of Problem: The Hazardous and Solid Waste Amendments of 1984 to the Clean Water and Solid Waste Disposal Act levied a requirement on owners of underground petroleum fuel storage tanks to notify local governments of such tanks and to monitor those tanks so that leaks can be detected before they reach ground water. Underground fuel storage tanks of the type FAA has installed in the past have a life expectancy of 15 years. The majority of those installed have been in place for 20 to 25 years. Double walled fiberglass replacement fuel tanks and permanent monitoring wells will be used to eliminate future problems. No detectors are required for existing tanks which are not replaced or repaired until required by EPA or state and/or local government municipalities.

Description of Solution: Provide $9,000,000 to replace and monitor existing ground fuel storage tanks and replace leaking tanks. The FAA has inspected fuel storage tanks, removed and/or replaced tanks, and converted gasoline engine generators to propane. This effort will continue into the 21st century.

Benefits: The FAA will be in compliance with State and Federal regulations governing storage of fuel in underground storage tanks.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 60,800.0
FY 1993 Appropriated	---	9,000.0
FY 1994 Request	---	9,000.0
Future Requirement	---	99,300.0
Total	Various	$178,100.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Procurement of Tanks and Regional Site Work	Various	$9,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E03 Fiscal Year 1994 CIP: 46-08; 46-16

Program Title: FAA Buildings and Equipment

Amount: $17,000,000 Location: Various

Basis for Request: A majority of the structures housing and/or supporting electronic systems within the National Airspace System are over 20 years old and will be required beyond the year 2001.

Description of Problem: Many existing facilities were built during the 1940's and 1950's. At the time of construction, very little consideration was given to energy consumption, safety standards, or earthquake hazards. Increased power and fuel costs have generated the need to retrofit some structures and modify others. Additional modifications and refurbishments are required to extend the service life of these structures to the year 2001 and beyond. Examples of these facilities include shelters for very high frequency omnidirectional ranges (VORs), radars, radar microwave links (RMLs), instrument landing systems (ILSs), engine generators, communication outlets, and other system facilities. Needed improvements include roofing, siding, insulation, updating heating and air-conditioning systems, replacing various operation and working equipment, and other projects designed to extend the service life of these structures.

Description of Solution: Provide $17,000,000 to fund this ongoing program to extend the service life of structures used to house and support components of the National Airspace System.

Benefits: Major benefits are the extension of the service life of the buildings and equipment coupled with reductions in energy consumption.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$103,775.9
FY 1993 Appropriated	---	17,000.0
FY 1994 Request	---	17,000.0
Future Requirements	---	272,900.0
Total	Various	$410,675.9

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Improve Structures	Various	$15,846.0
2. Regional Projects	Various	1,154.0
Total	Various	$17,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E04 Fiscal Year 1994 CIP: 26-07; 46-07

Program Title: Electrical Power Systems

Amount: $7,000,000 Location: Various

Basis for Request: Solid state electronics equipment being introduced into the National Airspace System (NAS) requires stable power sources, free from surges, to provide reliable operations.

Description of Problem: Many FAA facilities, when constructed, did not require lightning and/or surge protection for the equipment because tube-type equipment operated at higher voltages and was not as susceptible to being damaged by the transient currents created by lightning or other disturbances. To protect the new electronic equipment, lightning and surge protection devices need to be installed in the buildings at the entry point of commercial power. Concurrently, it is necessary to provide improved bonding, shielding, and grounding for the new equipment.

Due to the age of the standby power equipment and the reduced power requirements associated with the solid state electronic equipment, the existing standby power equipment at most facilities needs to be modernized, overhauled, or in some cases, replaced with battery systems.

Description of Solution: Provide $7,000,000 to fund this program to improve/replace the power sources for the equipment used in the NAS.

Benefits: This program ensures power availability and reduces operating costs and energy consumption of standby power systems at unmanned facilities.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$72,180.0
FY 1993 Appropriated	---	8,465.0
FY 1994 Request	---	7,000.0
Future Requirement	---	. a/
Total	Various	$87,645.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Regional Site Work	Various	$ 2,000.0
2. Washington Headquarters Procured Equipment and Services	---	5,000.0
Total	Various	$7,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E05 Fiscal Year 1994 CIP: 46-16

Program Title: Air Navigational Aids and Air Traffic Control Facilities (Local Projects)

Amount: $7,019,000 Location: Various

Basis for Request: Various local improvements are required to ensure the continued operational of Air Traffic Control facilities and air navigational aids.

Description of Problem: Various local minor improvements, restorations, and alterations must be made to many of the over 30,000 commissioned air navigation and air traffic control facilities throughout the United States. The following improvements are typical: (a) minor improvements to air traffic control positions in air traffic control towers or air route traffic control centers; (b) raising or relocating air/ground communications antennas to reduce frequency interference; (c) correcting fire hazards and improving security; and (d) correcting minor facility and equipment design deficiencies.

Description of Solution: Provide $7,019,000 for various improvement projects for which requirements often develop without advance notice but demand immediate action.

Benefits: This is a collection of improvement projects required to keep the national airspace system facilities efficient and up-to-date. The projects are mainly for correction of site specific problems and deficiencies.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$27,000.0
FY 1993 Appropriated	---	4,000.0
FY 1994 Request	---	7,019.0
Future Requirement	---	______. a/
Total	Various	$38,019.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Regional Site Work	Various	$7,019.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E06 Fiscal Year 1994 CIP: 46-16

Program Title: Air Navigational Facilities/Air Traffic Control System Support

Amount: $9,000,000 Location: Various

Basis for Request: Facility expansion providing essential air traffic services and associated system reliability requires technical assistance to support implementation.

Description of Problem: As air navigation/air traffic control systems are expanded, technical assistance is required to support system implementation and effectively respond to in-house engineering design and analysis problems of an urgent and unexpected nature. These support functions involve engineering services for: (a) the update or modification of production specifications for equipment procurement; (b) identification of key test equipment and logistics support requirements; (c) system standards for construction and installations; (d) improvements for maintainability and reliability; and (e) design of interface where several programs are involved.

Description of Solution: Provide $9,000,000 for engineering, design, and analysis in order to expedite program completion, correct deficiencies, and provide interface design support during field implementation.

Benefits: The major benefit having the capability to meet unexpected demands for system improvements efficiently to provide associated system reliability with minimum impact on essential air traffic services.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$66,694.4
FY 1993 Appropriated	---	9,000.0
FY 1994 Request	---	9,000.0
Future Requirement	---	. a/
Total	Various	$84,694.4

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Services	Various	$9,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E07 Fiscal Year 1994 CIP: 46-16

Program Title: Land/Easement Purchase for Existing Airway Facilities

Amount: $6,000,000 Location: Various

Basis for Request: The FAA analyzes each land lease to determine the comparative economic value of continued land lease or purchase. Land rights are purchased if it is cost effective and in the best interest of the Government.

Description of Problem: The FAA has been experiencing escalating land rental, particularly in areas in the vicinity of airports that are undergoing development. Land costs, and correspondingly land rentals, have been increasing faster than inflation in these areas. It is expected that land rental costs will dramatically increase over the next five years as the economy recovers from the recession, unless action is taken to acquire permanent land rights. Analyses of each site indicate that the net present value cost of leasing the site is greater than the present value cost of purchasing the site. Therefore, we have instituted a program to purchase leased sites as leases expire.

Description of Solution: Provide $6,000,000 to purchase permanent real estate rights for sites which economically qualify for purchase. This funding will significantly reduce land rental costs under the Operations appropriation and will eliminate high relocation costs which become necessary as rental costs, keeping pace with escalating land values, force relocation, if relocation is operationally possible.

Benefits: The purchase of these sites ensures continued facility operations while avoiding the expense of site relocation, flight checking, and the associated costs of publicly notifying airmen of these relocations. Also, it avoids payment of future rentals at locations that have long-term occupancy potential. In addition when FAA-owned real estate is no longer required, it is sold often at a higher price than when purchased, and the proceeds of the sale are returned to the Treasury.

APPROPRIATIONS SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$54,031.6
FY 1993 Appropriated	---	4,400.0
FY 1994 Request	---	6,000.0
Future Requirement	---	. a/
Total	Various	$64,431.6

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Regional Facility Site Locations	Various	$6,000.0

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a/ Future requirements are based on local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E08 Fiscal Year 1994 CIP: 56-12

Program Title: Aircraft Related Equipment

Amount: $12,000,000 Location: Various

Basis for Request: The FAA has a statutory requirement to perform flight inspection of navigational aids in support of the National Airspace System (NAS) and the Department of Defense; provide training to maintain currency and proficiency of FAA aviation safety inspectors and test pilots; support regulatory activities related to airworthiness of airmen, aircraft, equipment, systems, new equipment and other advances in aviation technology. This support mandates the use of aircraft related equipment which is capable of meeting minimum mission support criteria.

Description of Problem:

Flight Inspection Systems Enhancement. The present FAA flight inspections systems do not have the capability to efficiently support a number of near-term mission requirements and workload projections. $2,400,000 is requested to develop and implement the required flight inspection capability, data handling, networking, datalink, and overall system integration to increase productivity and quality of service. This is the first phase of a two-year project.

Aircraft Management Information System (AMIS) Enhancement Capability Development. AMIS, developed and implemented over a decade ago, has been modified to the practical limits of its design. It does not have the capability to accomplish new recordkeeping and reporting requirements resulting from Congressional interest in the use of aircraft by civilian Federal agencies. $2,880,000 is requested for the development and implementation of AMIS enhancements. This is the second phase of a three-year project.

Flight Inspection Runway Position Update Systems. Flight inspection of ILS localizer and glideslope systems with the present automatic flight inspection system requires precision position updates which are currently being measured and input manually by the flight crew. Cockpit workload at major terminals with concurrent approaches and landings being conducted simultaneously makes it difficult for the crew to evaluate the update and maintain air traffic separation. $1,230,000 is requested to complete development and deployment of a self-contained aircraft positioning system that requires minimum ground equipment support.

Very High Frequency (VHF) Communications Interference Canceler. The VHF radio systems installed in the BE-300 and BAe-800 aircraft of the flight inspection fleet are generating potentially hazardous interference. $3,140,000 is requested to procure and install VHF interference canceler systems in FAA's 19 BE-300 and 6 BAe-800 flight inspection aircraft to eliminate the potentially hazardous interference and enhance the safety of the flight inspection crew.

Radio Altimeter System. The radio altimeter systems currently installed in agency aircraft consist of obsolete analog altimeters which are becoming increasingly unreliable and unsupportable. The systems are critical during aircraft operations in the terminal environment in a landing profile where agency aircraft operate extensively in support of mission assignments. $600,000 is requested to acquire and install digital radio altimeter systems in agency aircraft.

Aircraft Weather Radar. All agency aircraft are mission-oriented and the lack of a reliable current technology weather radar system adversely impacts mission accomplishment. The existing weather radar systems on the BE-300 flight inspection aircraft is current technology, but does not have vertical profile capability. $450,000 is requested to acquire and install current technology weather radar systems in older aircraft and upgrade the radar in the BE-300 flight inspection aircraft.

Controllable Oscilloscope System. Spectrum analysis and frequency interference investigation from the airborne flight inspection platform is a primary concern. The occurrence of interference is increasing and proficiency in operating the instruments required to pinpoint interference sources is crucial. Existing operating inefficiencies result in inconsistent analysis of navigation and surveillance systems in the NAS. $750,000 is requested to acquire and install controllable oscilloscope systems in flight inspection aircraft capable of interfacing with the current spectrum analysis equipment, including software modifications required for computer interface.

Upgrade Research and Development (R&D) BE-200 Aircraft. The BE-200 aircraft assigned to the FAA Technical Center to accomplish general aviation R&D activities is not capable of fully accomplishing mission objectives because of the lack of certain high-technology features required to achieve various R&D milestones. Lack of these features diminishes the efficiencies derived from the investment in a futuristic "glass cockpit" and instrumentation. $350,000 is requested to upgrade the R&D BE-200 aircraft to a level commensurate with mission requirements and agency objectives.

Enhancement of Research and Development (R&D) S-76 Helicopter Engine. The Sikorsky helicopter assigned to the FAA Technical Center is not capable of fully supporting R&D program performance requirements on hot days because of engine temperature limitations. $200,000 is requested to install a compressor diffuser modification in each of the S-76's and two Allison 250-C30 engines. The enhancement will upgrade the performance, reliability, and safety of the S-76 and allow progressive R&D programs to accelerate toward achievement of rotorcraft mission objectives.

Description of Solution: Provide $12,000,000 to procure and install, enhance, and implement: (1) Flight Inspection Systems in flight inspection aircraft; (2) Required AMIS enhancements; (3) Flight Inspection Runway Position Update Systems in flight inspection aircraft; (4) VHF Communications Interference Canceler Systems in FAA's BE-300 and BAe-800 flight inspection aircraft; (5) Radio Altimeter Systems in agency aircraft; (6) Aircraft Weather Radar Systems in older agency aircraft and upgrade the radar in the BE-300 aircraft; (7) Controllable Oscilloscope Systems in flight inspection aircraft; (8) R&D's BE-200 aircraft; and (9) R&D's S-76 Helicopter Engines. Meeting and maintaining the agency's aircraft program requirements for aircraft related equipment is expected to remain reasonably constant and continuous. Future requirements will average $12,000,000 - $15,000,000 annually.

Benefits: This acquisition is part of a continuing multi-year plan to ensure that aircraft related equipment will be capable of meeting aircraft program mission needs.

APPROPRIATION SUMMARY

	Location	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 2,622.5
FY 1993 Appropriated	---	9,000.0
FY 1994 Request	---	12,000.0
Future Requirement	Various	47,100.0
Total	Various	$70,722.5

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Procure and install aircraft related avionics equipment, enhance AMIS and flight inspection systems, and upgrade R&D aircraft	Various	$12,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E09 Fiscal Year 1994 CIP: 26-11; 56-11

Program Title: Procure Flight Inspection Aircraft
(Aircraft Fleet Modernization)

Amount: $37,900,000 Aircraft: 2

Basis for Request: The FAA has statutory requirements to perform navigational aid flight inspection in support of the National Airspace System (NAS) and Department of Defense. This support mandates utilizing flight inspection aircraft which are capable of meeting minimum mission support criteria.

Description of Problem: The present flight inspection fleet includes aircraft with the average age of 19 years with some approaching 37 years since manufacture and require replacement. These aircraft are no longer in production, causing high operating costs, high maintenance costs, and unavailability of spare parts. The Medium Size/Range (MSR) aircraft are needed to effectively accomplish the present and the projected escalation in domestic flight inspection mission requirements. The acquisition of these replacement aircraft is supported by the Federal Aviation Administration's Aircraft Program Strategic Plan for FY 1991 through FY 2000. Adequate flight inspection aircraft must be acquired, to meet minimum mission support criteria.

Description of Solution: Provide $37,900,000 to acquire MSR flight inspection aircraft with fully installed and integrated flight inspection systems and to replace obsolete aircraft.

Benefits: This acquisition is part of a plan to upgrade the FAA flight inspection fleet with current technology for mission workload requirements. The aircraft are one-for-one replacements for obsolete aircraft and are required to accomplish the current flight inspection mission workload. In 1991, the FAA acquired six BAE 125-800 aircraft from the U.S. Air Force, resulting in disposal of the six most costly, out-dated flight inspection aircraft. Two aircraft replacements are authorized in FY 1992 and three additional aircraft replacements are funded in FY 1993. Two aircraft are requested in the FY 1994 budget. Two aircraft will be requested in future budgets to accomplish increases in the flight inspection workload. A contract was awarded to E Systems, 1/14/93, for 2 medium size/range systems funded in FY 1992. The contract contains options to procure additional systems, training, spare parts and ground support equipment during FY 1993 through FY 1996.

APPROPRIATION SUMMARY

	Aircraft	Amount ($000)
Appropriated (FY 1982-1992)	21	$ 94,600.0
FY 1993 Appropriated	3	117,100.0
FY 1994 Request	2	37,900.0
Future Requirement	2	66,100.0
Total	28	$315,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Aircraft	Estimated Cost ($000)
1. Exercise Existing Option for MSR Aircraft Systems	2	$30,000.0
2. Spares, Technical Data and Support	---	7,900.0
Total	2	$37,900.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E10 Fiscal Year 1994 CIP: 26-05; 46-05

Program Title: Large Airport Cable Loop Sustained Support

Amount: $1,000,000 Location: Various

Basis for Request: Existing airport cable configurations do not allow for redundant communications paths between airport facilities and towers. Order 6950.23A directs Airway Facilities to reconfigure cable configurations whenever possible into cable loop systems. Existing systems are being expanded and upgraded to new technology on an ongoing basis throughout the system. Funding under this program will allow the FAA comply with this order.

Description of Problem: Los Angeles airport is currently undergoing a major upgrade of all cable systems to enhance system reliability and safety. This includes replacing old and deteriorated cables and installing new fiber optic systems. St. Louis airport is undergoing a major expansion of the existing runway and cable systems. This requires relocation of existing cable systems. Reconfiguration of these systems into cable loop systems will provide additional benefits.

Supply support has not been provided due to lack of funding. This project will enable the FAA Academy and Logistics Center to initiate training and support programs for cable loop systems.

Description of Solution: Provide $1,000,000 to begin St. Louis and Los Angeles projects and initiate support practices at the Logistics Service Center and the Academy.

Benefits: Training for fiber optic systems will be provided to FAA personnel. System reliability and safety will be enhanced due to reduced outages and increased system performance from multiple pathways provided by loop systems. Cable systems will be upgraded and the constraints of Order 6950.23A will be met.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$20,400.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	1,000.0
Future Requirement	---	. a/
Total	Various	$21,400.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations	Estimated Cost ($000)
1. Regional Site Work	Los Angeles	$ 400.0
2. Regional Site Work	St. Louis	400.0
3. Logistics Support	Oklahoma City	200.0
Total	Various	$1,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E11 Fiscal Year 1994 CIP: 56-25

Program Title: Computer Aided Engineering & Graphics (CAEG) System

Amount: $1,500,000 Locations: Various

Basis for Request: Implementation of the Capital Investment Plan (CIP) will require modifications to many existing facility designs and the creation of a vast number of new regional and national standard designs. CAEG provides a method to ensure the timely response and turnaround to the enormous demands of the CIP in the areas of typographic, electrical and electronic, architectural, mechanical, and construction engineering designs with a relatively small increase in staffing.

Description of Problem: Additional funding is required to fund the resulting shortfall associated with the cost growth of CAEG workstation substitutions. Because the CAEG implementation effort spans over a period of five years ending in early FY 1994, and funding has been provided over a multiyear period, the original CAEG workstation has gone out of production and the program office has been forced to purchase more up-to-date workstations at a higher cost. The resulting impact has been one of a cost growth for hardware costs and first year maintenance costs. This funding is necessary to continue with equipment acquisition and upgrades under phase 1 of the CAEG program.

Description of Solution: Provide $1,500,000 to procure 52 plotters and 40 upgraded plotter interface software, so that the needs of the FAA can be met.

Benefits: Productivity improvements in drafting, cartographic, facility mock up, and planning applications; improved document quality; standardization of engineering data and design information for new and modified facilities; improved turnaround time leading in reduction in probability of project delays and associated cost overruns.

APPROPRIATIONS SUMMARY

	Location	Amount ($000)
Appropriated (FY 1982-1992)	---	$20,300.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	1,500.0
Future Requirement	---	0.0
Total	Various	$21,800.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Software	Various	$1,500.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 2E12 Fiscal Year 1994 CIP: 46-16

Program Title: Special Use Airspace Management System (SAMS)

Amount: $3,000,000 Location: Various

Basis for Request: The August 1988 GAO report, "Airspace Use, FAA Needs to Improve Its Management of Special Use Airspace (SUA)" states in part that "If FAA is to effectively manage special use airspace, it needs to know where, when, and how airspace is being utilized. To do this FAA needs users to report actual data in sufficient detail, not only for restricted areas but also for other areas, such as military operations areas."

Description of Problem: The special use airspace management system (SAMS) Version II consists of computers currently deployed to 21 ARTCCs, nine regional offices, six TRACONs, one AFSS, and three computers at headquarters. The current system is a prototype developed in direct response to the GAO report and is inadequate to handle the volume of data required to manage the SUA. Other than a one-way modem, facilities have no on line communication to headquarters. There is no central processing capability. The SAMS data is stored in raw form and must be manually manipulated into usable material. The military submits a report on SUA utilization via the military representatives at the regional offices. Central Airspace Resident Facilities (CARF), Air Traffic Control System Command Centers (ATCSCCs), Air Traffic Control Centers (ARTCCs), and Automated Flight Service Stations (AFSSs) have no automated means of obtaining up-to-date real-time information on SUAs or Military Training Routes (MTRs) for real-time management of the airspace system.

Description of Solution: Provide $3,000,000 to procure software, hardware, and communication units for real time management of the SUA. This funding will also provide the capability to interface with the Military Airspace Management System (MAMS) to interchange needed data with minimal coordination. Additionally SAMS will provide ATC facilities and flight service stations the capability to access the current status of SUA.

Benefits: SAMS would provide traffic management specialists at all levels access to SUA schedules and the display of the affected airspace. Real-time information concerning the status of joint use and military airspace would allow for effective and efficient use of airspace in the case of direct routing, shorter flight legs, or decreased operating costs to the user.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	3,000.0
Future Requirement	--- a/	0.0
Total	41	$3,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Hardware Procurement and Documentation	---	$1,000.0
2. Software Enhancement	---	1,300.0
3. System Support, Training, and Documentation	---	700.0
Total	Various	$3,000.0

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a/ Additional sites yet to be determined.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3A01 Fiscal Year 1994 CIP: 56-28

Program Title: Automated Data Processing (ADP) Facilities Management (CORN)

Amount: $35,000,000 Location: 12

Basis for Request: This request continues funding for the computer resources nucleus (CORN) project initially funded in the FY 1989 budget. Increased demands for general purpose host computer resources from operational and administrative programs within FAA have increased by a rate that far exceeds the present host capacity.

Description of Problem: The demand for general purpose host processing resources significantly exceeds the available capacities and capabilities. ADP management under the CORN program addresses this critical problem with the acquisition of ADP services from contractor provided facilities, hardware, software, and staff. During the 10-year contract life, the contractor will be required to meet growing demands for service and to upgrade installed hardware and software to ensure that the most cost-effective technologies are applied to the FAA data processing needs. Some of the areas that have increased workloads that require additional host resources are:

a. Logistics and Inventory Systems
b. Airport Inspection and Certification
c. ADP Configuration Management Information Systems
d. Management of National Airspace Telecommunications
e. DOT-wide Personnel, Accounting, and Payroll Systems
f. Accident Investigation
g. Aircraft Registration
h. Airmen Certification
i. Violation Enforcement

Description of Solution: Provide $35,000,000 for: (1) software conversion of major applications from the old hosts to the new hosts; (2) parallel operations during the test and checkout of the new system; (3) continuing operation costs for the contractor provided facility, equipment, staff support; and, (4) training for users of converted applications.

Benefits: The benefits of this funding are an upgraded and common system of ADP support for agency-wide use. The expansion of ADP capacity will be made available so that required service levels and productivity can be achieved. Other benefits include improved ADP service levels, maintained security levels, increased productivity, avoidance of lengthy procurement process, improved ADP cost-effectiveness, availability of latest technology, minimized risk to FAA, and providing the broadest competition.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 50,573.5
FY 1993 Appropriated	---	51,550.0
FY 1994 Request	12	35,000.0
Future Requirement	---	24,800.0
Total	12 a/	$161,923.5

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a/ The request for each year is for the same 12 locations.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
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COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Software Conversion of Major Applications and Implementation	12	$35,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3A02 Fiscal Year 1994 CIP: 46-16

Program Title: Airport Datum Monument Program

Amount: $1,500,000 Locations: 300

Basis for Request: Accurate position reference data is essential to the operation of automated navigation and air traffic control (ATC) systems. In turn, navigational/ATC systems have created an urgent need for additional and more accurate position data.

Description of Problem: Basic data is derived from the airport obstruction survey program conducted by the National Oceanic Service (NOS). The extremely accurate data is tied to the North American Datum (NAD) system and is used to form the matrix for the positioning of all data within the ATC system and on aeronautical charts. In 1985, accurate survey data was available for only 733 of 2,500 airports that require this data - those airports with instrument approach procedures. Future LORAN C and Global Positioning System (GPS) candidate airports will also require accurate position data in order to construct instrument approach procedures. There are approximately 1,000 additional airports that are candidates for the LORAN C and GPS program.

Description of Solution: Provide $1,500,000 to establish survey monuments at 300 airports per year. The program, begun in FY 1985 and continuing through FY 1995, will establish survey monuments on each of approximately 1,700 airports, thus tying them to NAD system. After completing the surveys from the 1,700 airports with non-precision instrument approach procedures, the program will continue to include surveys for LORAN C and GPS candidate airports.

Benefits: (1) Will provide greatly improved accuracy for 3500 airports to meet requirements and tie these airports into North American Datum. (2) Will directly support instrument approach procedures automation program and procedures into NAD. (3) Will directly support new airborne navigation system, such as inertial navigation, GPS and flight management systems. (4) Will provide improved accuracy for controller chart supplement used for ATC adaptation data.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	1,790	$10,532.9
FY 1993 Appropriated	300	1,500.0
FY 1994 Request	300	1,500.0
Future Requirement	---	. a/
Total	2,390	$16,372.9

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Establish Precision Survey Monuments	300	$1,500.0

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a/ Future requirements will be based on local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3A03 Fiscal Year 1994 CIP: 46-28; 26-14

Program Title: National Airspace System (NAS) Recovery Communications (RCOM)

Amount: $6,800,000 Location: Various

Basis for Request: The National Airspace System (NAS) Recovery Communications (RCOM) supports objectives associated with national policies on emergency communication, emergency mobilization, and disaster response including natural disasters or conditions of crisis or national emergency. RCOM is designed to complete, expand, and enhance the existing multimedia national network of command and control communications. In addition, the RCOM network is also available for routine purposes on a daily basis for use in dispatching and redirecting airway facilities maintenance technicians, aviation security, accident investigations, flight inspection aircraft, and other NAS activities. The FAA maintains NAS facilities at remote off-shore Western-Pacific and Caribbean locations. Due to their geographical location, these facilities are subject to hurricanes and typhoons with a high potential for communications outages. It is vital for personnel safety and system restoration to assure minimum essential communications can be performed during disaster operations such as those experienced in Hurricane Hugo (1989).

The FAA's primary mission for FY 1994 is to continue FY 1993 efforts to complete the existing NARACS network and subsequently continue ongoing efforts to establish and/or improve the necessary redundancy, mobility, connectivity, interoperability, and restorability to obtain survivability of FAA owned telecommunications during conditions of crisis or national emergency.

Description of Problem: Site spares at approximately 47 locations and the FAA Logistics Center are lacking which adversely impacts our ability to promptly restore critical NARACS communication systems. Further, because of the antiquity of NARACS hardware, some items are becoming unsupportable and need to be replaced.

In addition, the NARACS network is required to operate independent of the commercial telephone system. Currently, approximately five locations are using leased commercial communications to access remote transceiver locations. FAA owned communication systems are required and need to be installed to meet NARACS design requirements. Other problems include the lack of uninterrupted power systems required in case of catastrophic power failures, and the agency's slow progress in fully implementing the secure telephone network as required by an Executive Order.

Description of Solution: Provide $6,800,000 to establish on-site spares at approximately 47 locations and the FAA Logistics Center; replace critical unsupportable items; procure and install uninterrupted power systems, expand the secure telephone network as required, and establish FAA owned microwave radio connectivity at approximately four remote NARACS locations.

Benefits: Implementation of these items in FY 1994 is imperative in order to complete Phase I of the RCOM program as well as sustain an operational NARACS system that allows the FAA to effectively respond to accidents and natural disasters. Emergency communications allows a FAA quick response to disaster areas, which may contribute to a reduction in loss of life and property. In addition, this communications capability saves flying hours by FAA flight inspection aircraft and provides a means of communications for day-to-day field coordination between maintenance technicians and supervisors.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 6,645.0
FY 1993 Appropriated	---	8,300.0
FY 1994 Request	---	6,800.0
Future Requirement	---	90,100.0
Total	Various	$111,845.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Procure Site and Depot Spares	---	$1,500.0
2. Procure and Install Uninterrupted Power System	---	400.0
3. Expand Secure Telephone Network	---	500.0
4. Replace Unsupportable Hardware (ANT., Teletype, etc.)	---	1,300.0
5. Establish Microwave Radio Connectivity at Four Locations	4	2,400.0
6. Program Management Support	---	700.0
Total	Various	$6,800.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3A04 Fiscal Year 1994 CIP: 56-56

Program Title: NAS Management Automation Program

Amount: $8,000,000 Location: Various

Basis for Request: This request addresses a critical need within the FAA to use information technology to manage NAS Plan-related data and information processing systems efficiently and effectively. In order to perform these responsibilities successfully, management information programs require the development of comprehensive and integrated information systems which contain or provide a means of accessing the types of data required for management of the Capital Investment Plan (CIP).

Description of Problem: Present automation technology hardware and software capabilities are inadequate to provide management with access to the information within FAA needed to effectively manage the systems in the National Airspace System (NAS). The airway facilities divisions are relegated to using manual systems to facilitate planning, scheduling, and tracking of activities required to implement the program defined in the CIP through the year 2000.

Description of Solution: Provide $7,000,000 to establish the necessary information technology infrastructure to support the efficient and cost-effective management of the agency's resources. The implementation of NASMAP will result in the establishment of a national network, providing connectivity and communication capability to AF personnel engaged in the management and administration of the NAS program. Also provide $1,000,000 for continued development and management of the Resource Tracking Program (RTP) formerly Regional Project Management System (RPMS).

Benefits: Quicker access to management data and more efficient use of the Agency's resources will result with the implementation of an integrated management system and networks. These projects will allow improvements in the accuracy, commonality, and therefore, the sharing of information. This is necessary for sound management decisions, as well as the ability to conduct timely and meaningful analysis for the effective implementation and operation of the NAS.

APPROPRIATIONS SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$31,100.0
FY 1993 Appropriated	---	1,000.0
FY 1994 Request	---	8,000.0
Future Requirement	---	37,800.0
Total	Various	$77,900.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Task	Location/ Quantity	Estimated Cost ($000)
1. NAS Plan Automation	Various	$7,000.0
2. Resource Tracking Program	Various	1,000.0
Total	Various	$8,000.0

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FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3A05	Fiscal Year 1994	CIP: 46-23

Program Title: Hazardous Materials Management

Amount: $12,750,000	Location: Various

Basis for Request: The FAA is required by Executive Order 12088 to comply with all Federal, State, interstate, and local pollution control statutes in the same manner and to the same degree as any other person or entity. The Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended, establish mandatory compliance schedules to identify and remedy environmentally contaminated sites. The Federal Facilities Compliance Act of 1992 waives sovereign immunity of Federal agencies for environmental violations and subjects agencies to liability for fines and other penalties imposed by Federal, State, and local environmental agencies. Other environmental statutes, delineated in 40 CFR, place requirements on hazardous materials handling, hazardous waste disposal, and waste minimization.

Description of Problem: In 1988, the FAA began implementing a program in compliance with Federal regulations to identify and clean up environmental contamination at FAA facilities. The sites in question have been identified by internal reviews of past maintenance operations and releases at facilities, and notices of violations received from environmental regulatory entities. Federal and State laws mandate specific procedures and deadlines be followed from the moment contamination is identified until a site is decontaminated to the satisfaction of the regulatory entity. Since the beginning of the program, numerous site investigations have been performed which indicate the need for extensive long-term cleanup of environmental contamination from soil and ground waters at some FAA facilities. The investigations have indicated that contamination comes from a variety of hazardous substances, including fuels, solvents, herbicides, transformer oils (PCB's), and radioactive materials. A comprehensive program of Facility Environmental Evaluations began in FY 1993 and will continue in FY 1994 to better define the number and magnitude of hazardous waste problems at FAA facilities. In addition to addressing existing environmental contamination sites, this program has identified procedures for hazardous materials handling and hazardous waste disposal to prevent future environmental contamination and notices of violation.

Description of Solution: Fund $12,750,000 for site investigations, hazardous waste handling and disposal, and waste minimization. This will include drilling of monitoring wells, remediation of ground water, physical removal of contaminated soils, proper disposal or incineration of hazardous wastes, implementation of air pollution controls as required, and investigation and implementation of waste minimization alternatives.

Benefits: Presently, several FAA facilities are under administrative consent orders to achieve environmental compliance within specified deadlines. Funding will allow these FAA facilities to achieve compliance with administrative consent orders and State and Federal pollution control regulations, thus forestalling further environmental contamination. Additionally, the work funded will reduce FAA liabilities for fines and other civil penalties which may result from non-compliance with existing regulations.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 43,892.4
FY 1993 Appropriated	---	15,000.0
FY 1994 Request	---	12,750.0
Future Requirement	---	79,250.0
Total	Various	$150,892.4

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COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations	Estimated Cost ($000)
Compliance with Environmental Remediation and Pollution Prevention Requirements	Various	$12,750.0

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(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3A06 Fiscal Year 1994 CIP: 56-51

Program Title: Aviation Safety Analysis System (ASAS)

Amount: $20,000,000 Locations: Various

Basis for Request: To improve inspection, surveillance, certification and investigation programs and the safety mission through the development of an integrated automation system to capture safety related inspection data.

Description of Problem: Present automation hardware and software technology capabilities are inadequate to capture, disseminate, and analyze a wide range of safety related data. Most program managers, accident investigators, inspector personnel, support personnel, and other who need the information must use manual procedures that are antiquated and obsolete for planning, scheduling, capturing, and tracking work programs, investigation results, and safety information.

Description of Solution: Funding of $20,000,000 would continue modernization of the current system, system design efforts, and purchase of hardware and software infrastructure requirements for ASAS information management and communication processes.

Benefits: This project will substantially improve the accuracy, commonality, and the sharing of ASAS and other aviation safety-related information.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 33,200.0
FY 1993 Appropriated	---	12,000.0
FY 1994 Request	---	20,000.0
Future Requirement	---	129,000.0
Total	Various	$194,200.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations	Estimated Cost ($000)
Hardware/Software System Design/Maintenance	Various	$20,000.0

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Budget Item No: 3A07 Fiscal Year 1994 CIP: 43-21

Program Title: Operations Data Management System (ODMS)

Amount: $4,650,000 Location: Various

Basis for Request: The National Flight Data Center (NFDC) is composed of the United States Notices to Airmen (NOTAM) System (USNS) and the Aeronautical Information System (AIS). The current USNS and AIS are being replaced with a system that will integrate the functionality of both systems into an expanded aeronautical information system called the Operational Data Management System (ODMS)). This is the second year of a three year program to provide a fully automated aeronautical database and management system.

Description of Problem: The USNS and AIS current capabilities are inadequate and obsolete. The systems were developed in the early 1970s and have been the subject of heavy criticism from users of the data. The current USNS is not compatible with international formats. It is labor intensive in that much of the data has to be formatted and entered manually into the system. The AIS and USNS are expected to interface with the Advanced Automation Systems (AAS). The AIS and USNS data are regarded as essential and time critical to aviation safety. The data from both systems are distributed to all FAA air traffic control facilities, airlines, military base operations, and world wide via international and ICAO circuits.

Description of Solution: Provide funds to continue system development and begin implementation of the ODMS. Hardware and software support will be required on a continuing basis to develop and define system requirements that will generate functional specifications for a global database and a data management system. The planned system will provide for direct data input and validation by field operations offices and facilities. The system will be fully automated from the source of the data to dissemination. The lack of this ability places unacceptable constraints and limitations for producing a complete a system that will be able to interface with the AAS. It is essential to the integrity and safety of the AAS that this system be modernized and the dissemination of data be with current factual data regarding the NAS.

Benefits: A dedicated data management system with internal security, data integrity and transaction logging will result. The collection and distribution of safety related aeronautical data will be improved to provide more reliable and credible automated data. This will provide the FAA with the ability to meet user and system requirements in near term and in future years.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	4,650.0
FY 1994 Request	---	4,650.0
Future Requirement	---	13,100.0
Total	Various	$22,400.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
System Development/ Implementation	Various	$4,650.0

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Budget Item No: 3A08 Fiscal Year 1994 CIP: 56-54

Program Title: FAA Employee Housing

Amount: $18,500,000 Location: Various

Basis for Request: FAA owns approximately 240 dwelling units that provide housing for FAA employees and their families at remote locations throughout the U.S. and overseas possessions. Employees occupying these units provide air traffic control services and National Airspace (NAS) facilities maintenance services to ensure safe, efficient, and expeditious movement of air traffic throughout these remote areas. Adequate and reasonably priced housing is not commercially available for employees and their families at these remote locations.

Description of Problem: In Alaska, where about 90 percent of FAA-owned housing is located, FAA plans to design and continue construction of new employee housing units in Alaska. Included in these projects will be the replacement of water and sewage systems, electrical power plants, community service facilities, new furniture, roadways, and landscaping. The construction projects will also include the demolition of existing housing, some of which are over 40 years old and contain varying amounts of asbestos.

Construction costs at remote areas in Alaska are significantly higher than compared to similar construction projects in the lower 48 states. Many factors contribute to this higher construction cost including the lack of building materials and skilled labor at remote locations and the short construction season before the onset of inclement weather.

Hurricane Hugo demolished all of the housing units on Virgin Islands. FAA employees currently live in leased units on the islands. The FAA is paying $915,336 per year for rent. This has created an emergency drain on the Operations budget and less expensive quarters are required.

Description of Solution: Provide $18,500,000 to provide new housing units for FAA employees and their families.

Benefits: FAA is finding it increasingly difficult to fill vacant positions at remote locations due, in part, to the poor condition of employee housing. The replacement of old employee housing will help FAA to fill staffing shortages and will lessen relocation costs incurred as a result of high turnover rates. The benefit for this investment in the Virgin Islands housing will be recognized in approximately 8 years.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 4,000.0
FY 1993 Appropriated	---	8,000.0
FY 1994 Request	---	18,500.0
Future Requirement	---	45,300.0
Total	Various	$75,800.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Provide FAA Housing	Various	$18,500.0

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Budget Item No: 3A09 Fiscal Year 1994 CIP: 56-37

Program Title: Logistics Support Systems and Facilities (LSSF)

Amount: $5,000,000 Location: 1

Basis for Request: This is the third year of a multi-year project to identify and provide support equipment, facilities, and automated systems directly required for NAS project deployment life-cycle support. The implementation of the capital investment plan (CIP) impacts the FAA Logistics Center logistics support functions, particularly supply support.

Description of Problem: The FAA Logistics Center supports NAS equipment, facilities, and systems that have become obsolete or have significant deterioration leading to sparing/support problems in the Exchange and Repair (E&R) program. In addition, the number of spares, as a direct result of CIP deployments, have increased and the technology for testing and quality control has changed. Lack of resources results in the inability to replace obsolete/deteriorated test equipment, to provide an effective material handling capability, and to automate material management processes for managing inventories supporting NAS equipment/systems.

Description of Solution: To provide responsive life cycle support, the FAA Logistics Center needs to have new unique automated test equipment (ATE)/other test equipment for repair of complex new NAS equipment; to design, develop, and implement automated management processes for managing inventories supporting the NAS equipment/systems; and to acquire new storage devices and new high-reach, versatile forklifts necessary to increase the efficiency and the capacity of automated and manual storage.

Benefits: Adequate equipment, facilities and automated systems will enable the FAALC to provide adequate life cycle support for NAS equipment/systems, thus allowing the FAA to continue the mission of providing a safe, secure and efficient aviation system.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 600.0
FY 1993 Appropriated	---	2,900.0
FY 1994 Request	1	5,000.0
Future Requirement	---	. a/
Total	1	$8,500.0

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a/ Continuing requirement to be validated on a year-to-year basis.

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COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Development of automated management processes for managing inventories supporting NAS equipment/ systems	---	$3,600.0
2. Provision of new storage devices and new high-reach, versatile forklifts	---	500.0
3. Provision of new unique automatic test equipment/other test equipment needed for repair of new NAS equipment/systems	---	900.0
Total	1	$5,000.0

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Budget Item No: 3A10 Fiscal Year 1994 CIP: 56-27

Program Title: Test Equipment - Maintenance Support for Replacement Equipment

Amount: $9,000,000 Location: Various

Basis for Request: The installation of new solid-state facilities and equipment in the National Airspace System has established a requirement to replace the older tube-type equipment with more accurate and stable test equipment.

Description of Problem: A large percentage of the test equipment currently used in equipment maintenance was designed to be compatible with tube-type technologies. As more and more of the tube-type equipment is being replaced with solid-state equipment, the ability of the older tube-type test equipment is being exceeded. The newer equipment requires more precision and accuracy in verifying proper operation and must also be compatible with equipment in a remote maintenance environment.

Description of Solution: Provide $9,000,000 to upgrade the test equipment used in the maintenance of the National Airspace System.

Benefits: Replacement reduces high maintenance and repair costs associated with the older test equipment; the new test equipment is more accurate and stable; test equipment on-line availability time would increase; and new equipment supply support is commercially available off-the-shelf.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$31,897.0
FY 1993 Appropriated	---	2,000.0
FY 1994 Request	---	9,000.0
Future Requirement	---	. a/
Total	Various	$42,897.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment	Various	$9,000.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

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Budget Item No: 3A11 Fiscal Year 1994 CIP: 46-16

Program Title: Radio Frequency Interference (RFI) Vans

Amount: $2,000,000 Location: Various

Basis for Request: The demand for frequencies in the electromagnetic spectrum continues to increase as existing facilities are expanded and new systems are introduced into the National Airspace System (NAS). With this growth comes crowding and its attendant Radio Frequency Interference (RFI). Effective management of the radio spectrum, which more and more includes resolution of interference problems, is essential to the successful operation of the NAS.

Description of Problem: The growth of radio spectrum use by government and non-government entities contributes to the amount of RFI experienced on a daily basis to commissioned NAS facilities, and impacts on the commissioning of new NAS facilities. Our methods and efficiency of RFI investigation needs to keep up with the growing NAS system. At present, regional Spectrum Management Officers (SMO) use nonstandard and in many cases old inferior test equipment in various ad hoc trucks to track down RFI.

Description of Solution: This project will provide funds for the purchase of three of the 11 required vans with test/analysis equipment.

Benefits: The major benefit is that of providing the regions with the necessary RFI vans, and the training in their use, toward that goal of achieving efficient, independent identification of the source of interference problems.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	Various	2,400.0
FY 1994 Request	Various	2,000.0
Future Requirement	---	3,300.0
Total	Various	$7,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Services	Various	$2,000.0

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Budget Item No: 3A12 Fiscal Year 1994 CIP: 56-62

Program Title: Child Care Centers

Amount: $4,845,000 Location: Various

Basis for Request: Authorized in 1986, the Trible Amendment cleared the way for establishing child care programs for children of government employees in Federal buildings. Since the enactment of this legislation, over 75 Federally sponsored child care centers have been established across the country.

In response to the emphasis by the Department of Transportation (DOT) on the establishment of child care centers for the children of DOT employees where the need exists, the FAA is continuing its increasing effort to establish on-site child care centers. The FAA believes that the provision of child care centers at locations where proven need and employee/management support exist is vital to fulfilling the agency's mission.

Description of Problem: Attracting and retaining a highly skilled technical work force is a continuous challenge for the FAA. Funding high quality, affordable child care, available during unusual work hours, is becoming increasingly difficult for employees. Available on-site child care greatly enhances FAA's ability to recruit and retain highly qualified employees in the technical specializations which are required. The construction of child care centers at air route traffic control centers (ARTCCs) is considered essential because of the need for FAA to not only compete with the private sector for highly qualified employees in the shrinking technical workforce but also to compete to retain these employees. Projections of work force demographics estimate that by the year 2000 women are expected to participate in the labor force in the same percentage as men and ninety percent of these women whill be of child-bearing age. This will create a demand for child care which the projected community and private child care facilities will not be able to handle. This becomes especially critical for the employee population in the air traffic control and related occupations.

Description of Solution: It is anticipated that in order to implement the DOT and FAA program initiatives and meet the demand for on-site child care for employees through the next several years, it will be necessary for FAA to construct up to four child care centers per fiscal year at large and mid-size ARTCCs nationwide and to expand the child care center at the FAA Technical Center.

Benefits: On-site child care centers at ARTCCs and the Technical center constructed, furnished, and maintained as necessary to provide for the ongoing, growing needs of employees will enhance the ability of the FAA to recruit and retain the highly specialized, technical workforce required at these locations to ensure the continued successful, safe and efficient operation of the airspace system throughout the 1990s and beyond. Upon completion, the child care centers are managed as non-profit corporations by Boards of Directors consisting of agency employees/parents. Tuitions and fundraising efforts by the non-profit corporations pay for the child care centers' staff and operational costs (exclusive of maintenance). The FAA depends on its employees to ensure the success of its mission to keep the nation's airspace safe.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 2,700.0
FY 1993 Appropriated	Various	2,489.0
FY 1994 Request	Various	4,845.0
Future Requirement	---	11,466.0
Total	Various	$21,500.0

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COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost - ($000)
Child Care Center Construction	ARTCCs (4)	$4,845.0

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Budget Item No: 3A13 Fiscal Year 1994 CIP: 66-21

Program Title: Integrated Flight Quality Assurance

Amount: $2,500,000 Location: Various

Basis for Request: Modern digital aircraft can readily record large amounts of selected data useful for subsystem monitoring. Because such data directly reflects operational performance, it provides the best possible basis for integrated flight quality assurance, whether the focus is on aircrew qualification, aircraft maintenance, or certification of new aircraft systems. This project will provide the FAA with the capability to routinely acquire and analyze digital data recorded during air carrier line operations.

Description of Problem: Airborne data pertinent to subsystem monitoring is not presently accessed for FAA purposes, except on a post-accident basis. Existing alternative sources of information pertinent to informed regulatory decision making and programmatic oversight, such as the Accident/Incident Data Base, or the Performance Tracking and Monitoring System, do not provide the degree of precision readily available from digital flight data recording (DFDR). However, presently the FAA lacks the required capability to acquire and analyze such DFDR data.

Description of Solution: In cooperation with the airline industry, airborne digital data acquisition standards and procedures will be developed. The FAA will establish a capability for electronic data acquisition, analysis, and storage. Custom software will be created to support large scale automated analysis tailored to global oversight of airborne operations.

Benefits: This project will provide the FAA with empirical data directly applicable to validating the effectiveness of FAA policies, practices, and regulatory requirements pertaining to air carrier flight operations.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	2,500.0
Future Requirement	---	10,300.0
Total	Various	$12,800.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Hardware/Software System Design	---	$2,500.0

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Budget Item No: 3A14 Fiscal Year 1994 CIP: 46-16

Program Title: Explosives Detection Systems (EDS)

Amount: $1,500,000 Location: Various

Basis for Request: The threat of criminal acts against civil aviation utilizing improvised explosive devices remains. Recent world events have increased the level of threat. An effective and reliable means to detect explosives in passenger baggage is vital to the protection of the public.

Description of Problem: Since 1985, there have been over 1100 persons killed or injured as a result of explosives being used against civil aviation aircraft. The FAA has continued to aggressively pursue the development of an effective means for detecting explosives in passenger checked baggage. Both the Congressional Office of Technology Assessment (OTA) and the National Academy of Sciences (NAS) have concluded that no single detector either exists, or will likely exist, in the near future that can provide practical, reliable detection of all of the various explosives of concern to civil aviation. The OTA concluded that a combination of devices, is the most promising means of attaining high-confidence protection from explosive devices concealed in checked baggage and carry-on luggage as well as on the person of passengers.

Description of Solution: Provide $1,500,000 to complete the FAA's planned TNA airport demonstrations and continue the operational airport demonstration program for other state-of-the-art explosives detection technologies. As of December 1992, there have been five deployments of TNA-XENIS systems to airports in the U.S. and overseas. The current status of the six FAA-owned TNA-XENIS systems is: one TNA-XENIS unit is under operational evaluation (London Gatwick); two additional units are scheduled for installation in the international terminal at San Francisco International Airport by the summer of 1993; two units have been or are being returned to the manufacturer's facility; and, one unit has been set aside for special testing by the FAA Technical Center. Purchases and deployments to airport operating environments of other explosives detection technologies (e.g., vapor/particle detector, enhanced X-ray) are in process. Funds will be used to continue installation, operation, maintenance, data collection and analysis, unit modification and improvements, decommissioning and other costs for operational deployments of these technologies to airports. The Aviation Security Improvement Act requires testing of EDS equipment by the FAA to certify that it is capable of meeting certain performance requirements in an airport operating environment. The information and experience developed during the demonstration program will be an invaluable contribution to developing and revalidating operationally sound EDS certification testing procedures and for improving the performance of explosives detection technologies in an actual airport operating environment. In addition, the demonstration will provide information useful in validating explosives detection equipment testing protocols, technologies, operational procedures and standards. At the same time, the continued operational use of advanced EDS technologies such as TNA is providing a higher level of protection to air passengers not obtainable by any other means available today.

Benefits: In addition to providing a level of protection to the public not presently available by any other means today, the demonstration program continues to meet its objectives:

1. To demonstrate explosives detection technology and devices outside the laboratory in a variety of actual airport operating environments in the U.S. and abroad.

2. To understand the complexities associated with site preparation, installation, airport and airline operational requirements, as well as legal and administrative considerations for various technologies.

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3. To collect information on various technologies and devices for validation of certification testing and evaluation of the calibration process at different airports where the cross section (e.g., types and distribution of nitrogen content) of passenger bags and other operating conditions may vary significantly from those that can be simulated under laboratory conditions.

4. To identify areas for performance improvement.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$27,655.8
FY 1993 Appropriated	---	5,000.0
FY 1994 Request	---	1,500.0
Future Requirement	---	. a/
Total	Various	$34,155.8

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Complete Airport Operations & Decommission TNA Systems	6	$ 240.0
2. Procure, Install, Operate, and Maintain Enhanced X-Ray, Vapor/Particle and Other Explosive Detection Devices	12	1,160.0
3. Data Collection, Reduction, Analysis, and Evaluation	---	100.0
Total	Various	$1,500.0

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a/ Future requirements will be redefined.

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Budget Item No: 3A15 Fiscal Year 1994 CIP: 56-24

Program Title: Airmen/Aircraft Registry Program

Amount: $9,100,000 Location:

Basis for Request: In response to the findings that the use of general aviation aircraft is a major contributing factor in the illegal drug trade in the United States, Congress enacted the Federal Aviation Administration Drug Enforcement Assistance Act (Sec. 7201 of the Anti-Drug Abuse Act of 1988 (P.L. 100-690)). One of the efforts the legislation calls for is the strengthening of the enforcement of regulations regarding the registration of aircraft and certificating of registering aircraft, certificating pilots, and processing major aircraft repair and alteration forms must be substantially improved to adequately support the drug interdiction effort.

Description of Problem: Requirements were established to correct existing deficiencies of the obsolete systems that are used in the registration and certification process. These systems do not provide a timely disposition of airmen and aircraft data, are not easily accessible by law enforcement agencies, and do not provide the capability to ensure form and/or certificate authenticity. Replacement of the existing systems with state-of-the-art equipment is essential if the FAA is to meet congressionally mandated implementation timeframes.

Description of Solution: Provide $9,100,000 to complete improvements to the Airmen and Aircraft Registry Program which began in FY 1990. These funds will provide the capability to respond to the mandates of Congress and purchase the required imaging hardware, software, telecommunications, and integration services.

Benefits: The improved systems of registering aircraft, certificating pilots, processing major aircraft repair and alteration forms, and the increased enforcement of requirements associated with such systems will benefit all users of such systems including law enforcement officials and the general public.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	1	$21,810.4
FY 1993 Appropriated	---	4,000.0
FY 1994 Request	---	9,100.0
Future Requirement	---	0.0
Total	1	$34,910.4

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Renovation of Registry	1	$9,100.0

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Budget Item No: 3A16 Fiscal Year 1994 CIP: 46-16

Program Title: National Aviation Safety Data Center

Amount: $2,000,000 Location: Various

Basis for Request: A primary mission of the FAA is to perform integrated safety analyses and studies which combine the expertise of staff specialists from FAA program services (air traffic, airway facilities, flight standards, airports and aircraft certification) with the expertise of staff specialists in quantitative analysis and information systems. In order to fulfill this mission, FAA requires access to high quality safety information/data resources and advanced analytical tools. The aviation safety advanced analysis program (ASAAP) will provide FAA with these resources and tools through the application of automation technology and rigorous data management procedures.

Description of Problem: A number of studies have been critical of the FAA's overall capability to perform safety analysis and manage safety information. They have concluded that the information systems and analytical methodologies currently employed by the FAA to analyze and monitor safety performance of the National Airspace System are antiquated and inefficient, cumbersome and difficult to use, require repetitious duplication of effort, and produce reports which often are not timely and of questionable validity.

Description of Solution: The objective of the ASAAP is to unlock potential for enhance aviation safety by employing automation technology and rigorous data management procedures to increase significantly the FAA's return on current and future investments in safety information systems. This will be accomplished by simplifying complicated and difficult access procedures, strengthening questionable data integrity, enabling analysis to be conducted on an integrated basis across multiple databases, coupling the power of advanced automation and analytical tools with the expertise of AA analysts and managers, and enabling any FAA employee with a microcomputer to receive high quality safety information and reports.

Benefits: This program will significantly enhance safety analysis and monitoring capabilities.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	1	2,000.0
Future Requirement	---	. [a]
Total	Various	$17,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. Program Management Support	---	$ 450.0
2. Software/Hardware Integration	---	600.0
3. Software/Hardware Telecom	1	950.0
Total	1	$2,000.0

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[a] Future requirements are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3B01 Fiscal Year 1994 CIP: 56-29

Program Title: Simulation Based Training Systems

Amount: $24,300,000 Locations: Various

Basis for Request: Currently, the air traffic training program makes extensive use of live traffic, on-the-job training (OJT) to bring air traffic control personnel to the full performance level (FPL). Extensive use of live traffic OJT for controller training is not the best or safest method for bringing controllers to FPL status. Stand-alone simulation based training systems will improve the efficiency and effectiveness of air traffic controller training. In addition, these systems will help FAA adapt to new automation systems, increasing user demands, and a changing workforce.

Description of Problem: Existing systems lack basic instructional features, are difficult to use, and require excessive human resources. These limitations force the majority of controller training to be conducted in the live envionment. Existing training devices cannot simulate future automation systems or airspace configurations. Controller training can only be performed after new automation systems are installed or new airspace changes are put into effect.

Description of Solution: Provide $24,300,000 to initiate contracts for terminal stand-alone radar training systems (TSARTS) and en-route stand-alone radar training systems (ESARTS). TSARTS will be based on successful proof-of-concept installations in field facilities. The ESARTS will be a system based on a developed and tested proof-of-concept.

Benefits: The TSARTS will provide field facilities with a simple cost-effective system that will significantly improve controller training. The TSARTS will help the FAA respond to user demands by allowing facilities to develop, validate, and train, new airspace configurations in advance of their implementation. ESARTS will greatly reduce the risk of implementation of the Initial Sector Suite System and Voice Switching and Control System by allowing controller training to be conducted in advance of system installation.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 23,000.0
FY 1993 Appropriated	---	10,000.0
FY 1994 Request	---	24,300.0
Future Requirement	---	102,400.0
Total	Various	$159,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Quantity/ Locations	Estimated Cost ($000)
1. ESARTS	---	$21,300.0
2. TSARTS	---	3,000.0
Total	Various	$24,300.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3B02 Fiscal Year 1994 CIP: 56-02

Program Title: Computer Based Instruction (CBI) Expand/Improve

Amount: $7,650,000 Location: Various

Basis for Request: Computer based instruction (CBI) is recognized as an effective and efficient training medium for delivery of technical training. CBI reduces the requirements for instructional services and for travel to a central location for traditional lecture/laboratory-type training. CBI enables the delivery of standardized training tailored to the needs of the trainees. Students can opt to test through portions of a course in which they are already proficient, thus reducing duty time lost to training. In 1993, CBI learning stations will have been delivered to airway facilities field offices, air route traffic control centers, Level II through V towers, automated flight service stations, and aircraft certification regulatory, and security field offices.

Description of Problem: Present training is costly in per diem and travel expenses, instruction labor, work time lost to training, and classroom space. FAA needs cost-effective, performance-based training. With the introduction of new systems to the NAS, FAA personnel require both transition and initial training.

Description of Solution: Provide $7,650,000 for CBI learning stations with CD ROM, courseware development, and local area networks to:

1. Replace outdated CBI learning stations and install learning stations in facilities which currently have no access to CBI, thereby enabling specialists at those locations to meet training requirements via CBI.
2. Convert existing CBI courseware for OATS compatibility and develop new courseware to satisfy additional training requirements.
3. Install local area networks (LAN) in the field.
4. This item has been identified as part of the Flight Plan for Training.

Benefits: CBI will meet our current and future needs by:

- Training technical workforce through standardized CIP courseware
- Reducing training travel costs
- Improving efficiency/productivity of existing training staffs
- Providing flexibility in scheduling training according to each individual and facility's needs
- Allowing greater local management control of training schedules and resources
- Providing on-site proficiency/update training
- Increasing employee productivity

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$29,865.0
FY 1993 Appropriated	---	2,900.0
FY 1994 Request	---	7,650.0
Future Requirements	---	. a/
Total	Various	$40,415.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Workstations	Estimated Cost ($000)
1. Procure CBI Hardware	450 full-feature OATS platforms	$5,000.0
2. Courseware Conversion and Development	30 development stations for 30 sites	1,650.0
3. Install Local Area Networks (LANs)		1,000.0
Total	480	$7,650.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3B03 Fiscal Year 1994 CIP: 56-30

Program Title: Aeronautical Center Training and Support Facilities

Amount: $6,600,000 Location: 1

Basis for Request: The FAA Academy provides training for all electronic systems currently in the FAA inventory. The FAA Logistics Center provides repair support of NAS programs via contract and in-house repair and supply support of hundreds of programs supporting air traffic safety. The National Field Engineering Support Division provides second level engineering support for assigned facilities in the National Airspace System (NAS). The addition of new NAS Plan and Capital Investment Plan (CIP) equipment to the FAA's inventory has recently coupled with a significant student workload. This combination is causing the capacity of the FAA Academy, Logistics Center, and Engineering Support Division physical plants to be exceeded. The need for additional physical plant space results in a corresponding need for related infrastructure, such as roads, sewers, and water lines.

Description of Problem: All available space is currently being used to provide for immediate training requirements and supply/repair needs. Much of the current training is being conducted in portable and temporary structures scattered across the FAA Academy campus, and in some cases, in buildings that do not meet current building codes. Many of these individual buildings were not constructed to accept and protect today's modern air navigation equipment, nor are they suitable classrooms or laboratories for the conduct of training. Current facilities are in the proximity of Will Rogers World Airport and can cause interference with existing airport equipment. New system implementation with inadequate instruction or supply/support facilities will result in field personnel unable to operate and/or maintain systems.

Description of Solution: Provide $6,600,000 to fund the planning/construction of complexes and related infrastructure at the Aeronautical Center to replace antiquated, obsolete facilities and accommodate new systems. The funding will provide for completion of VOR/TACAN/DME training complex. It will also provide for planning for additional Logistics Center space, a Radar Training Complex, and a second level engineering facility as well as necessary related infrastructure. The VOR/TACAN/DME, and Radar training complexes have been identified as part of the Flight Plan for Training.

Benefits: Training and supply/support capabilities for new equipment would be greatly enhanced. Permanent facilities for the new generation of equipment would be available to support the training and supply/support requirements set forth in, or pursuant to implementation of, the NAS Plan and the CIP.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 3,500.0
FY 1993 Appropriated	---	4,100.0
FY 1994 Request	1	6,600.0
Future Requirements	---	127,900.0
Total	1	$142,100.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Infrastructure	---	$ 3,600.0
2. Logistics Center Space (Study)	---	500.0
3. VOR/TACAN/DME Training Complex (Completion)	---	700.0
4. Radar Training Complex (Study)	---	1,000.0
5. Second Level Engineering Support Facility (Study)	---	800.0
Total	Various	$6,600.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 3B04	Fiscal Year 1994	CIP: 56-35

Program Title: National Airspace System (NAS) Training

Amount: $6,100,000 Locations: 2

Basis for Request: To meet the needs of NAS technical and management training, the FAA Academy and Center for Management Development are in need of improved communications capabilities. Additionally, the FAA Academy has a need for simulation training devices and upgraded instructor staff work areas and classrooms.

Description of Problem: As new NAS equipment is introduced in FAA facilities, the FAA must keep pace with training by acquiring and installing the same equipment, or high technology simulators at the FAA Academy. The FAA Academy and the Center for Management Development must be prepared to accommodate the necessary resulting changes in training programs. New system training demands will require enhanced automation of information management and improvements in other support functions, such as communications. Additionally, the Academy physical plant will require improvements between now and the year 2000.

Description of Solution: Provide $6,100,000 to fund the acquisition and installation of necessary simulation and communication devices, as well as classroom and work area improvements. Communication devices will be installed both at the FAA Academy and the Center for Management Development. Simulation devices and classroom/work area improvements will be implemented at the FAA Academy.

Benefits: Technical and management training capabilities for new equipment will be greatly enhanced. Instructors will be able to more efficiently revise and produce lesson plans, laboratory exercises, and other instructional essentials. Students will be taught most efficiently and effectively by utilizing the most realistic learning environment possible.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	2	6,100.0
Future Requirements	---	. a/
Total	2	$6,100.0

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a/ Continued requirements are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
1. Automation & Technology Procurement Interactive Instructional Delivery System/Part-Task Training Devices	1	$ 2,200.0
2. Automation & Technology Procurement - Satellite Training Capability	2	1,900.0
3. TPSB Retrofit - Tower Cab Equipment Retrofit	1	400.0
4. Automation & Technology Procurement - AF Training Technology Procurement	1	300.0
5. Automation & Technology Procurement - Advanced Technology Classrooms	1	200.0
6. Facility Upgrade Projects - Upgrade A.F. Instructor and Staff Work Areas	1	600.0
7. Digital Bright Radar Display (D-BRITE) Simulator - Est ASR with ARTS and Brite Display System	---	500.0
Total	1	$6,100.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A01 Fiscal Year 1994 CIP: 26-13; 36-13

Program Title: System Engineering and Support Contract (SEIC)

Amount: $121,157,000 Location: Various

Basis for Request: The Capital Investment Plan (CIP) specifies the need for a total system approach which will accommodate future demands and technology, improve vital safety services, and increase productivity while constraining costs.

Description of Problem: The services of systems engineering, systems integration, and management support contractors are required to implement the operational equipment, computer programs, procedures, documentation, and activities in support of the CIP goals.

Description of Solution: Provide $121,157,000 to procure necessary expertise in all phases of the CIP implementation, from problem definition and functional analysis through system design, equipment specification, preparation of procurement documentation, proposal evaluation, performance validation, transition planning, system acceptance and certification, and logistics and training support.

Benefits: Provides technical and management support to FAA project/program managers for the efficient and timely implementation of the Capital Investment Plan. Provides ATC system expertise in specific areas of endeavor on an as-required basis.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 744,417.0
FY 1993 Appropriated	---	132,181.0
FY 1994 Request	---	121,157.0
Future Requirement	---	755,800.0 a/
Total	Various	$1,753,555.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. Centrally Procured System Engineering and Integration/ System Engineering Technical Assistance Prime Contractor and Support Contractor and Services	---	$ 67,300.0
2. Centrally Procured ATC System Development Contractor (e.g., MITRE)	---	36,400.0
3. Centrally Procured System Engineering Support Contractors (Small Business, 8A, etc.)	---	17,457.0
Total	Various	$121,157.0

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a/ Includes follow-on System Engineering Technical Assistance requirements.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A02 Fiscal Year 1994 CIP: 36-24; 26-16

Program Title: Logistics Support Services (LSSC)

Amount: $12,000,000 Location: Various

Basis for Request: There is a large surge in materiel management, real property and contracting workloads associated with the peak period of the National airspace system modernization effort.

Description of Problem: The Capital Investment Plan (CIP) will generate a peak workload for regional logistics divisions over the period FY 1988 through FY 1998 in contracting, materiel management, and real property acquisition and management.

Description of Solution: Provide $12,000,000 to ensure that adequate real property acquisition, management, and contracting are available for the various projects in direct support of CIP. These requirements represent a temporary surge in activity, funds are required to contract for assistance rather than to recruit and then terminate federal employees over relatively short periods of time.

Benefits: Adequate real property acquisition, materiel management support, and contract administration will help reduce delays in the installation of new NAS Plan and CIP projects.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 27,292.2
FY 1993 Appropriated	---	9,700.0
FY 1994 Request	---	12,000.0
Future Requirement	---	70,000.0
Total	Various	$118,992.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Real Estate Acquisition, Materiel Management and Contract Administration	Various	$12,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A03 Fiscal Year 1994 CIP: 56-22

Program Title: Human Resource Management Plan for National Airspace System (NAS) Transition/Implementation

Amount: $1,700,000 Location: Various

Basis for Request: The FAA needs an integrated, long-range planning process for its human resources. There is considerable evidence that the introduction of new technology into organizations without careful human resource planning can result in unacceptable system performance, even though a system has met all engineering specifications. Human resources planning is a major undertaking for the FAA and must be considered within the context of the systems comprising the NAS and overall performance requirements. There is no margin for reduction in either safety or efficiency in the nation's airspace. An integrated, long-range human resource planning process is in the best interests of the FAA, the aviation community and the flying public.

Description of Problem: The different work forces within FAA are affected by NAS modernization in different ways and different time frames, and the work forces are interdependent. Human resource requirements necessary to support implementation and operation of the NAS projects must be identified. The FAA must have the right number of people with the right knowledge, skills, and abilities in the right places at the right time in order to assure integration of capital investment plan (CIP) activities into FAA operations with no negative impact on safety, capacity or efficiency.

Description of Solution: The development of data flow between the system development community and the human resource planning community throughout the life of new systems is essential to synthesizing the developed processes, tools and data. Integration of planning processes across organizational lines will permit the emergence of design alternatives which optimize human resources. These links will ensure that the system development, training, user, and program communities share vital human resource data, e.g., workload, staffing, training, and availability data.

Integration will be assured through the development of a planning infrastructure which connects planning processes throughout the agency. This will be accomplished by developing the appropriate FAA orders and standards, integrating the data structures within the agency, and by providing coordination processes for the organizations in the various communities. All planning processes will be mapped using information engineering technologies. A pictorial representation of current planning processes will be used as a baseline to identify the data, data flow, and processes needed by different planning functions.

Benefits: By the end of FY 1993, the FAA will have enhanced "what if" analyses and the organizations will continue the integration of existing automated systems. The FAA will have the improved data and planning processes required to reflect an integration of HRM planning efforts across organizations which will be fully coordinated with the budget cycle.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	Various	$3,984.6
FY 1993 Appropriated	---	2,000.0
FY 1994 Request	---	1,700.0
Future Requirement	---	300.0
Total	Various	$7,984.6

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
1. Analysis for Publication of 1994 and Development of NAS HRM Reference and Planning Manual	---	$ 100.0
2. Refinement of Models/ Continuing Analysis	---	500.0
3. Integration of Automated Systems and 1994 NAS HRM Plan	---	1,100.0
Total	Various	$1,700.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A04 Fiscal Year 1994 CIP: 56-33

Program Title: Mike Monroney Aeronautical Center - Lease

Amount: $13,200,000 Location: 1

Basis for Request: The Mike Monroney Aeronautical Center provides centralized training, logistical, and services support for the agency. Primary facilities include the FAA Academy for centralized training and the FAA Logistics Center for warehousing equipment and materials, centralized repair, and facilities for administrative and other support services.

Description of Problem: The Federal Aviation Administration (FAA) and the Oklahoma City Airport Trust (OCAT) have renewed a formal lease agreement through April 30, 2012, whereby the FAA leases buildings and land comprising the Aeronautical Center.

Description of Solution: Provide $13,200,000 for the Aeronautical Center lease for FY 1994.

Benefits: Continued leasing of the Aeronautical Center facilities provides a centrally located warehousing and staging facility for agency project work throughout the country and provides essential training facilities.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 40,354.2
FY 1993 Appropriated	---	13,300.0
FY 1994 Request	1	13,200.0
Future Requirements	---	102,000.0 a/
Total	1	$168,854.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Aeronautical Center Lease Payment	1	$13,200.0

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a/ Through FY 2012, there is an estimated contingent liability of $104,748,000 (present value) associated with the FAA's long-term leases of facilities for the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A05 Fiscal Year 1994 CIP: 36-23

Program Title: In-Plant National Airspace System (NAS) Contract Support Services

Amount: $5,400,000 Location: Various

Basis for Request: Due to the magnitude, nature, and complexity of the capital investment plan (CIP), additional support is and will be needed to manage contracts effectively and efficiently.

Description of Problem: Representation is needed on-site at FAA systems contractor and support contractor facilities to assist in the review and management of designated major systems acquisitions, as set forth in DOT Order 4200.14C. The size of the contracting staff is inadequate, and cannot provide an in-plant presence for timely contract administration services and production surveillance support.

Description of Solution: Provide $5,400,000 for the continuance of resident contract liaison offices (CLOs) at designated contractor facilities to provide an in-plant contract liaison and production surveillance capability for the FAA.

This contractor support will assist the FAA in monitoring progress, compliance, and problems of major contracts; review requests for progress payments; review proposed subcontracts for FAA contracting officer consent; ensure submission of required reports; provide an independent assessment of contractor production status and proposed workaround plans; review and evaluate contractor's proposals, and provide an assessment to assist the contracting officer in negotiations; and assist in the evaluation of claims.

Benefits: The FAA will receive timely and responsive production surveillance and contract administration support services through an in-plant presence at designated CIP system contractor facilities. This will lead to: (a) improved coordination and communication between the FAA and CIP system contractor; (b) more thorough analysis in the review of CIP system contractor production plans and proposals; (c) reducing contract-related processing time; and (d) improved management of the contract administration process.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 6,764.3
FY 1993 Appropriated	---	5,100.0
FY 1994 Request	---	5,400.0
Future Requirement	---	49,935.7
Total	Various	$67,200.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations	Estimated Cost ($000)
Contract Support Services	Various	$5,400.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A06 Fiscal Year 1994 CIP: 56-47

Program Title: Transition Engineering Support

Amount: $48,274,000 Location: Various

Basis for Request: FAA must ensure that equipment and systems being delivered by the acquisition process continue to transition into the operational environment as smoothly as possible. The emphasis for this planning must be placed upon engineering, operational procedures, human resource planning, staffing, training, logistic support, and other programmatic requirements.

Description of Problem: To achieve successful National Airspace System (NAS) implementation, technical system transition plans, which are facility specific, must be regionally developed for each project. Identifying, coordinating, and resolving significant NAS integration issues must be continued; transition engineering studies and assessments must be continued; and NAS schedule assessments, interrelationships, and program impacts must be identified. Plans for software integration, human resources, operational procedures, and FAA-DOD transition must be developed.

Description of Solution: Provide $48,274,000 for regional transition planning and implementation, transition engineering, integration, and coordination of NAS programs. This project will provide technical support to the regions and various headquarters organizations for planning, implementation, and integration of projects during the post-development/post-acceptance period.

Benefits: Implementation of NAS transition planning is critical to timely identification and resolution of integration and implementation issues for the large numbers of NAS programs being implemented in the field.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 4,000.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	48,274.0
Future Requirements	---	327,926.0 a/
Total	Various	$380,200.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Centrally Procured Services	Various	$ 48,274.0

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a/ Continuing requirements (until FY 2000) to provide systems engineering and support are being refined.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A07 Fiscal Year 1994 CIP: 56-58

Program Title: National Airspace Integrated Logistics Support (NAILS)

Amount: $7,000,000 Location: Various

Basis for Request: This requirement continues funding for the development of analytical models, automation tools, and Integrated Logistics Systems support for the NAILS program to minimize costs associated with acquisition and maintenance of major NAS systems and equipment.

Description of Problem: Application of NAILS to NAS acquisitions ensures program requirements are incorporated into planning, acquisition, and maintenance documents. Infusion of NAILS requirements into the planning and acquisition phases of NAS facility, systems, and equipment is essential to provide supportability over their operational life cycle. Continued development of models and automation tools and integrated logistics system support provides for cost effective management of NAS acquisitions.

Description of Solution: Provide $7,000,000 to fund this increment of a multi-year program to incorporate NAILS requirements into NAS acquisitions. Integrate logistics support requirements and information to organize and manage the data in a central database and develop the necessary models and automation tools to support the program.

Benefits: NAILS enables the agency to effectively manage NAS supportability and minimize costs associated with acquisition and maintenance. Logistics information data and models and automation tools are used by the agency to perform repair level analysis and identify spares quantification to identify equipment failure trends, influence equipment design, and reduce inventory requirements for cost effective management over the operational life cycle of NAS systems.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 9,500.0
FY 1993 Appropriated	---	7,056.0
FY 1994 Request	---	7,000.0
Future Requirement	---	27,900.0
Total	Various	$51,456.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Centrally Procured Equipment and Services	Various	$7,000.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A08	Fiscal Year 1994	CIP: 26-15; 56-15; 56-26

Program Title: Frequency and Spectrum Engineering and Frequency Interference Support/Resolution

Amount: $3,500,000	Location: Various

Basis for Request: Thorough long-range planning is required to acquire and retain the radio frequency spectrum for aeronautical systems, and provide spectrum management guidance to agency personnel and to various national/international users. The resolution of frequency interference problems is our most important function in maintaining the integrity of the NAS.

Description of Problem: The radio frequency spectrum is a limited resource which faces continually increasing congestion and competition among its users. In addition, radio frequency interference (RFI) is a growing problem particularly in the area of major airports. Careful planning is required to avoid problems with interference, poor propagation, the unavailability of spectrum for particular applications. Frequency interference problems need to be identified and rectified more quickly as their numbers continue to grow.

Description of Solution: This project will provide funds to: (a) conduct aeronautical band studies to identify interference thresholds; (b) provide applications engineering analysis of radio frequency propagation and electromagnetic compatibility; (c) provide criteria for development of the future air-to-ground VHF communications system; (d) provide electromagnetic compatibility characterization of the radio frequency environment (e) modernize software and hardware for more efficient radio frequency engineering; and (f) supply the sectors with the necessary equipment and training to expeditiously resolve RFI.

Benefits: Effective radio spectrum management, electromagnetic compatibility, non-interference transition of new systems into the National Airspace System, and expeditious RFI resolution.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 9,700.0
FY 1993 Appropriated	Various	2,500.0
FY 1994 Request	Various	3,500.0
Future Requirement	---	_____ a/
Total	Various	$15,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Centrally Procured Services	Various	$ 3,500.0

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a/ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A09 Fiscal Year 1994 CIP: 46-16

Program Title: Acquisition Oversight

Amount: $1,700,000 Location: Various

Basis for Request: Independent oversight of major systems acquisitions (MSA) ensures that a disciplined process is followed from establishment of the mission need to demonstration of operational readiness.

Description of Problem: Mission need statements must be evaluated, as well as acquisition plans and operational requirements documents. Status of various programs must be evaluated independent of the program office. There are now 20 Level I major acquisitions and 12 Level II programs.

Description of Solution: Provide $1,700,000 for contractor support for evaluation of alternative solutions, review of documentation, cost and schedule estimates, to support the limited FAA oversight staff.

Benefits: Independent evaluation of the major acquisitions will help to ensure that good management practices will be followed and that informed decisions will be made at the appropriate times and by the appropriate levels. It will ensure that these acquisitions follow a logical process based on OMB Circular A-109, Major Acquisitions.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$1,000.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	1,700.0
Future Requirement	---	. a/
Total	Various	$2,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
MSA Oversight/Evaluation	Various	$1,700.0

---

a/Continued requirements are validated on a year-to-year basis.

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A10	Fiscal Year 1994	CIP: 26-19

Program Title: Technical Support Services Contract (TSSC)

Amount: $64,900,000 Location: Various

Basis for Request: The Capital Investment Plan (CIP) has reached the stage where large quantities of new equipment are being deployed to the field. Significant work is required to modify and relocate existing equipment to meet the demands placed on the National Airspace System (NAS).

Description of Problem: The FAA's CIP for the 1994 through 2001 time period will require additional F&E resources. Implementation and installation of NAS improvements require specialists with electronic, mechanical, and civil engineering expertise. A national technical support services contract was awarded to provide the regions and centers with increased scheduling flexibility required to meet the large number of equipment deliveries.

Description of Solution: Provide $64,900,000 to fund the technical support services contract in FY 1994. The average projected cost per man year (staff year) for TSSC for FY 1994 is estimated to be approximately $93,250. This includes all associated cost (salary, travel, general & administrative overhead).

Benefits: Provide supplemental resources as required to assist the F&E organizations in accomplishing their mission.

APPROPRIATIONS SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$147,100.0
FY 1993 Appropriated	---	40,000.0
FY 1994 Request	---	64,900.0
Future Requirement	---	414,000.0
Total	Various	$666,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Location/ Quantity	Estimated Cost ($000)
Regional Implementation	Various	$64,900.0

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item No: 4A11 Fiscal Year 1994 CIP: 56-61

Program Title: FAA System Architecture

Amount: $3,000,000 Location: Various

Basis for Request: To meet its critical mission and program responsibilities such as aviation safety, air traffic management, security, logistics, and maintenance, the FAA requires an environment in which information and data are defined consistently throughout the agency; collected and maintained with appropriate accuracy, reliability, security, and currency; available for reuse; and accessible by authorized users. To support this environment, the FAA needs an information technology (IT) infrastructure of computing and communication systems which interoperate smoothly and efficiently; perform reliably and securely with effective back-up mechanisms; are modular and expandable; and have well defined interfaces. FAA's information system applications also need to be modular, expandable, and portable to accommodate changes such as new mission requirements or technology substitution; operate efficiently on whatever technology platform they reside; be developed and maintained efficiently and cost effectively through the use of modern automated tools and methods; and be integrated with other related applications and databases. Agencywide information technology needs to be planned from a corporate perspective and prioritized and funded consistent with agency mission goals, objectives, and priorities.

Description of Problem: Several internal and external evaluations and audits have identified systemic agencywide IRM problems including inadequate definition of requirements and consideration of alternatives, ineffective management of existing systems, unreliable data, and difficulty in acquiring and managing information resources. Information systems are often delivered late and over budget and do not meet all of the user needs. There is a lack of a corporate process to effectively obtain and align agency information resources with established business priorities. Multiple sources of the same data exist throughout the FAA, and the available data is not always perceived as comprehensive, relevant, reliable, or accurate. Other problem areas include lack of consistent software development expertise, especially in the area of automated development tools, no repository of information on FAA databases and software, incomplete and untraceable system and project level specifications, no preferred or recommended software development tools for assurance of design completeness, little consideration for maintenance in the development of information systems, and no recommended FAA software engineering methodology. In addition, the FAA spends considerable resources to collect and maintain valuable data that is under-utilized after the initial collection. FAA processes are paper and manual intensive. Data is often rekeyed a number of times and, in many cases, the rekeying process involves redundant information and introduced errors.

Description of Solution: Provide $3,000,000 in initial funding to begin this multi-year program which will provide an architectural framework that defines the inter-relationships among all key elements involved in information resources management and use within the agency. The architecture will guide, coordinate, and integrate the acquisition, development, and implementation of automated data processing equipment and software, telecommunications, automated information systems applications and databases, and associated support services. Four of the major components of this architecture initiative will address implementation of computer-aided software engineering (CASE), development of a corporate information repository, re-engineering and integration of corporate systems, and implementation of electronic data interchange (EDI).

Benefits: Benefits include improved return on the FAA IT investments, increased sharing of data and information and less duplication of systems and data, more timely, better quality information, improved interoperability and compatibility of information systems, improved security of information

PRESIDENT'S BUDGET
FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

systems, reduced reliance on contractors for IT planning and design, and reduced resources required for information systems development and maintenance.

APPROPRIATION SUMMARY

	Locations	Amount ($000)
Appropriated (FY 1982-1992)	---	$ 0.0
FY 1993 Appropriated	---	0.0
FY 1994 Request	---	3,000.0
Future Requirement	---	. a/
Total	Various	$3,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost ($000)
Centrally Procured Services Equipment, and Software	1	$3,000.0

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a/Future requirements are being refined.

FACILITIES AND EQUIPMENT
(AIRPORT AND AIRWAY TRUST FUND)

Activity 5. Personnel and Related Expenses $202,000,000

Summary Requirements ($000)

	FY 1992 (Actual)	FY 1993 (Estimate)	Change	FY 1994 (Request)
Auth Positions	2,204	2,504	0	2,504
FTE	1,733	2,200	100	2,300
EOY Employment	2,066	2,300	150	2,450
Funding	$143,506	$191,000	$11,000	$202,000

This activity funds the personnel, travel and related expenses of the FAA F&E workforce. The F&E work specialties include electronic, civil, and mechanical engineers; electronics technicians; quality control and contract specialists; and flight inspection personnel.

	FY 1992	FY 1993	Change	FY 1994
Personnel Compensation & Benefits	$100,814	$133,000	$14,200	$147,200
Travel	25,191	29,180	3,930	33,110
Permanent Change of Station	2,404	25,639	(7,449)	18,190
Other Objects	2,648	3,181	319	3,500
Technical Services Support Contract	12,449	*		
Total Funding	$ 143,506	$191,000	$11,000	$202,000

*Beginning in FY 1993, TSSC is included in Activity 4.

The following summary reflects estimated staffing levels for FY 1992 through FY 1994:

	1992	1993		1994
Full Time Permanent Positions:				
Regions Airway Facilities	1,382	1,573	0	1,573
Technical Center	334	388	0	388
Aeronautical Center	52	59	0	59
Flight Inspection	29	29	0	29
Acquisition Support (HQs)	143	155	0	155
Program Control (HQs)	264	300	0	300
Total Positions	2,204	2,504	0	2,504
Total FTE	1,733	2,200	100	2,300
Funding for PC&B($000)	$103,000	$133,000	$14,200	$147,200

Increases 100 FTE $14,200,000

$ 1,000	Annualization of FY 1993 WIGs; new FY 1994 WIGs; merit pay
1,200	Annualization of FY 1993 pay raise
6,400	Funding for 100 FTE to support increased employment
5,600	Funding to sustain FY 1993 employment

$14,200 covers all mandatory pay adjustments, an increase of 100 FTE, and funding to sustain the FY 1993 base employment level in FY 1994. Prior year funding constraints delayed hiring until year-end to ensure that unobligated carryover funds were available to fund current year costs of prior year staff increases. Specifically, $5.6 million of unobligated FY 1992 funds will support the FY 1992 staffing increases in FY 1993. Estimates for FY 1993 do not result in a carry over of Activity 5 funds into FY 1994. The adjustment of $5,600 is required to correct the base, and combined with the funding to support additional FTE, will provide the necessary resources to reach an estimated employment level of 2,450 in FY 1994.

As the NAS/CIP provides new equipment and systems to enhance the safety and efficiency of the NAS, the Airway Facilities staff must provide the in-house technical expertise capable of meeting the demands of integration, test, and installation. The quantity of equipment and systems coming on line continues to increase each year. Equipment purchased by FAA in the 1989-1991 timeframe will be delivered in FY 1994. The Airway Facilities staffing has not kept pace with the growth of the NAS/CIP plans. With the additional FTE and the adjustment to the base, the F&E workforce will be able to meet the workload requirements in FY 1994.

TRAVEL

The budget includes $33,110 to provide the required level of travel to support NAS Plan implementation in FY 1994. The request for travel includes inflation and an increase to the travel base.

Travel requirements for F&E engineers often exceed 50 percent of their time, with many installation crews and technicians spending approximately 80 percent of their time on the road. In addition, new F&E engineer hires gain invaluable on-the-job experience working closely with journeyman level engineers on site. The primary field activities include developmental and operational testing functions, factory acceptance tests, site evaluations, site coordination, critical design reviews, contract monitoring, quality assurance, and support to field installation crews.

OTHER OBJECTS

Includes funding for small equipment and tools, common use supplies and printing that is related to generic F&E programs, not project specific.

PERMANENT CHANGE OF STATION (PCS) MOVES

	1992	1993	Program Change	1994
Funding ($000)	$3,000	$25,639	($7,449)	$18,190
Number of moves	100	682	(212)	470

Beginning with FY 1993 budget, all PCS costs directly associated with the actual consolidation or opening (one-time moves to transfer Air Traffic and Airway Facilities staff to a new facility) of various NAS facilities are budgeted for in Activity 5. These costs are a one-time occurence and are included as part of the capitalized costs of the projects. In FY 1994, the following consolidation efforts require PCS resources:

	FY 1993 Estimate	FY 1994 Request
Southern California TRACON	- $ 12,934 (257 moves)	$7,985 (148 moves)
Dallas/Ft Worth Metroplex	- $ 1,325 (53 moves)	$1,400 (53 moves)
Flight Service Station	- $ 6,000 (204 moves)	$3,165 (102 moves)
Denver Airport	- $ 2,380 (68 moves)	$1,680 (46 moves)
New Chicago TRACON	- $ 0	$ 760 (21 moves)
Total one-time moves	- $ 22,639 (582 moves)	$14,990 (370 moves)

In addition to the one-time moves, there is $3,200 in the base for 100 PCS moves for the F&E workforce associated with normal attrition and reassignments to cover shifts in workload.

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

Research, Engineering and Development
(Airport and Airway Trust Fund)

For necessary expenses, not otherwise provided for, for research, engineering, and development, in accordance with the provisions of the Federal Aviation Act of 1958, as amended (49 U.S.C. App. 1301 et seq.), including construction of experimental facilities and acquisition of necessary sites by lease or grant, [$230,000,000] $237,371,000, to be derived from the Airport and Airway Trust Fund and to remain available until expended: Provided, That there may be credited to this appropriation funds received from States, countries, municipalities, other public authorities, and private sources, for expenses incurred for research, engineering, and development. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>
Program and Financing (in thousands of dollars)

Identification Code	1992	1993	1994
69-8108-0-7-402	Actual	Estimate	Estimate
Program by Activities:			
Direct program:			
01.01 Air Traffic Control	98,927	---	---
01.02 Management and Analysis		11,264	13,498
02.01 Advanced computer	25,281	---	---
02.02 Capacity and Air Traffic Management Technology		74,370	66,338
03.01 Navigation	1,209	---	---
03.02 Communications, Navigation and Surveillance		30,920	34,075
04.01 Aviation Weather	3,909	---	---
04.02 Weather		6,672	1,908
05.01 Aviation Medicine	9,353	---	---
05.02 Airport Technology	---	6,619	7,081
06.01 Aircraft Safety Technology	70,799	36,365	41,175
07.01 Environment	2,616	---	---
07.02 System Security Technology	---	35,930	35,930
08.01 Human Factors and Aviation Medicine	---	29,366	27,256
09.01 Environment and Energy	---	6,432	5,385
10.01 Innovative/Cooperative Research	---	8,361	4,725
00.91 Total Direct Program	212,094	246,299	237,371
01.01 Reimbursable Program	227	1,470	1,510
10.00 Total Obligations	212,321	247,769	238,881
Financing:			
21.40 Unobligated balance available, start of year	-10,258	-16,299	---
24.40 Unobligated balance available, end of year	16,299	---	---
39.00 Budget authority (gross)	218,362	231,470	238,881

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FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>
Financing and Outlays (in thousands of dollars)

Identification Code 69-8108-0-7-402		1992 Actual	1993 Estimate	1994 Estimate
	Budget authority:			
	Current:			
40.00	Appropriation	218,135	230,000	237,371
	Permanent:			
68.00	Spending authority from offsetting collections	227	1,470	1,510
	Relation of obligations to outlays:			
71.00	Total obligations	212,321	247,769	238,881
72.40	Obligated balance, start of year	181,452	179,150	183,349
74.40	Obligated balance, end of year	-179,150	-183,349	-172,138
87.00	Outlays (gross)	214,624	243,570	250,092
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal Funds	-216	-1,397	-1,435
88.40	Non-Federal sources	-11	-73	-75
88.90	Total, offsetting collections	-227	-1,470	-1,510
89.00	Budget authority (net)	218,135	230,000	237,371
90.00	Outlays (net)	214,397	242,100	248,582
	Enacted requested			
	Budget authority	218,135	230,000	237,371
	Outlays	214,397	242,100	248,582
	Investment proposal			
	Budget authority	--	--	12,629
	Outlays	--	--	7,577
	Total:			
	Budget authority	218,135	230,000	250,000
	Outlays	214,397	242,100	256,159

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)

The FY 1994 budget proposes funding to conduct research, engineering and development programs to improve the national air traffic control system by increasing its safety, security, productivity and capacity to meet the expected air traffic demands of the future. The agency also administers human factors and aviation medical research aimed at increasing the personal effectiveness and safety of air traffic controller personnel, airway facilities maintenance, and the safety of aircrew members.

These programs are conducted by the agency's technical personnel and through contracts with qualified private firms, universities, individuals and through agreements with other Government agencies. An additional $12,629,000 for 1994 is included in separate investment budget schedules.

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>
OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

Identification Code		1992	1993	1994
69 8108 0-7-402		Actual	Estimate	Estimate
	Direct obligations:			
	Personnel compensation.			
11.1	Full-time permanent	35,862	35,173	36,145
11.3	Other than full-time permanent	1,869	1,888	1,943
11.5	Other personnel compensation	613	1,120	1,155
11.8	Special personal services payment	1,127	414	458
11.9	Total personnel compensation	39,471	38,595	39,701
12.1	Civilian personnel benefits	6,971	7,820	8,018
21.0	Travel and transportation of persons	3,841	4,264	4,470
22.0	Transportation of things	248	267	287
23.2	Rental payments to others	56	60	65
23.3	Communications, utilities, and miscellaneous charges	814	875	941
24.0	Printing and reproduction	33	35	38
25.0	Other services	146,479	176,522	165,473
26.0	Supplies and materials	3,784	4,068	4,373
31.0	Equipment	5,957	6,404	6,884
32.0	Land and Structures	50	0	0
41.0	Grants, subsidies, and contributions	4,390	7,389	7,121
99.0	Subtotal, direct obligations	212,094	246,299	237,371
99.0	Reimbursable obligations	227	1,470	1,510
99.9	Total obligations	212,321	247,769	238,881

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>
PERSONNEL SUMMARY

Identification Code 69-8108-0-7-402	1992 Actual	1993 Estimate	1994 Estimate
Direct: Total compensable workyears:			
Full-time equivalent	773	711	711
Full-time equivalent of overtime and holiday hours	8	8	8
Reimbursable: Total compensable workers:			
Full-time equivalent employment	3	6	6

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>

PROPOSED 1994 INVESTMENT

In addition to funding already available under this heading, and subject to the same terms and conditions, for research, engineering, and development $12,629,000 to be derived from the Airport and Airway Trust Fund and to remain available until expended.

Program and Financing (in thousands of dollars)

Identification Code 69-8108-7-7-402	1992 Actual	1993 Estimate	1994 Estimate
Program by Activities:			
00.02 Capacity and air traffic management	--	--	10,601
00.03 Communications, navigation, and surveilla	--	--	1,600
00.05 Airport technology	--	--	428
10.00 Total obligations (object class 25.2)	--	--	12,629
Financing:			
40.00 Budget authority (appropriation)	--	--	12,629
Relation of obligations to outlays:			
71.00 Total obligations	--	--	12,629
74.40 Obligated balance, end of year	--	--	-5,052
90.00 Outlays	--	--	7,577

The proposed investment funding provides for the conduct or research and development to improve the national air traffic control system by increasing safety and capacity to meet air traffic demands of the future.

SECTION 1
INTRODUCTION TO THE RESEARCH, ENGINEERING, AND DEVELOPMENT PROGRAM

The Federal Aviation Administration (FAA) manages and operates the National Airspace System (NAS). This responsibility is supported by a comprehensive Research and Development (R&D) program to ensure both the safety of public air transportation and the fulfillment of national priorities and policy goals.

The NAS represents a significant national resource. However, the demands on this system are continuously growing, and changing technologies provide the opportunity to dramatically improve system effectiveness and efficiency. To this end, the FAA's Research, Engineering, and Development (R,E&D) program is an investment in the future that will support the United States preeminence in aviation throughout the world. A sampling of FAA's R&D program areas and how they can contribute to the economic health of the United States is shown in the table below. They can provide new markets to industry, create new jobs, and permit technologies initially developed for the aviation industry to be used by other industries.

Economic Benefits

PROGRAM AREAS	ECONOMIC BENEFITS
Satellite Navigation and Communications	◆ 200,000 GPS receivers to be manufactured by 2003; avionics industry opportunity estimated at $3 billion. ◆ Applications in automobiles, trucking, railroad, and maritime industries.
Aircraft and Engine Airworthiness	◆ Approximately 100 new generation commercial aircraft annually for the domestic U.S. fleet at approximately $150 million/aircraft. ◆ International market potential estimated at 60% of U.S. aircraft sales.
Airport Technologies	◆ Airport and design runway surfaces to permit U.S. manufacturers to design wider and heavier new generation aircraft.
Explosives Detection Systems	◆ Approximately 300 systems required for U.S. applications for a U.S. industry opportunity of $400 million. ◆ Applications to other industries threatened by terrorist activities.
Air Traffic Control Automation	◆ Fuel cost savings up to $1 billion annually. ◆ Air carrier aircraft operating costs savings of up to $2.6 billion annually.

The importance of aviation to the nation's economy cannot be overstated. Aviation and related industries contribute over $600 billion to the United States economy (5.5% GNP), encompassing over 8 million jobs. Aviation is critical to business travel, tourism, and travel services (a $47.5 billion industry), as well as aircraft components ($24.7 billion), cargo and mail transport, and industrial national and international competitiveness.

Aerospace is by far the largest exporting industry for the United States, with a 1990 industry trade surplus of $27 billion. The United States is currently the recognized world leader in aerospace, aviation, and air traffic control.

Today, 21 of the country's largest airports are plagued by more than 20,000 hours of delays per year, which could impact 33 major airports within the next 5 years. Nationally, air traffic delays cost the economy an estimated $7 billion in passenger delays and $3 billion in aircraft operating costs. At current trends, these costs will increase 50 percent within 10 years.

Aviation and related industries are also challenged by energy and environmental factors. Currently, 45 percent of air carrier aircraft operating costs are for fuel, a large portion of which is imported oil. While reducing fuel usage is a priority in terms of energy conservation, it is also an increasingly critical environmental issue, based on recent findings relating to nitrogen oxide emissions at high altitudes. Given the projected increases in aviation activity and stringent environmental standards being proposed in Europe and possibly elsewhere, reductions of noise and engine emissions are essential to the viability of the national aviation industry.

The FAA must accommodate the increasing demand on limited airport and airspace capacity, deal with crucial airport security issues, and cope with the unforeseen problems of an aging aircraft fleet.

The FAA's vision for the future air traffic management system is rooted in the pursuit of a safe system that does not constrain flight. It requires even greater safety for passengers, with more fire and crash resistant aircraft interiors and unsurpassed airworthiness in aircraft components and designs. The future aviation system will be international in scope. The changes that are taking place around the world and the rapid increases in the demand for aviation services worldwide, all underscore the adoption of a global view. The system will be safer, exhibiting fewer fatal accidents and acts of terrorism; have fewer delays; and generate less noise. It will accommodate a broad spectrum of users--single engine general aviation aircraft, business aircraft, rotorcraft, current and advancing commercial aircraft, and military aircraft of all types. It will accommodate new generations of aircraft, including subsonic and supersonic aircraft. The increased automation will impact the controller, pilot, and maintenance technician. For example, the controller will focus, increasingly, on air traffic management and decision-making, permitting automated systems to execute tactical instructions for traffic separation and control.

The FAA is requesting funding for an aggressive R&D program to meet the demands on the current and next generation NAS. The objectives of this program are to:

- Reduce the civil aviation fatality rate by at least 10% by 1999.
- Increase airspace and airport capacity at least 20% by 1999, and an additional 20% by 2005.
- Reduce runway incursions by 80% by 2000.
- Reduce the number of accidents and incidents attributable to controller, flight crew, and maintenance crew human error by 50% by 2000.
- Reduce the number of accidents and incidents attributable to weather by 20% by 1997.
- Eliminate aircraft fires and aging aircraft concerns as significant safety issues by 1996.
- Provide non-precision approach capability, or better, at 95% of all U.S public airports by 1996.
- Implement new, effective security measures that operate effectively with minimal interference to passengers and carriers.

SECTION 2
THE R,E&D PROGRAM

2.1 RELATIONSHIP TO PRIORITY AREAS

Many of the projects in the FAA's R,E&D program contribute to achieving five priorities: Economic Health and Productivity; Technological Leadership and Competitiveness; Aviation Safety and Security; Energy Conservation; and Environmental Protection. Expanded NAS capacity and reduced delays through the application of new technologies will help to maintain the nation's technical leadership and competitiveness in this field. For example:

- Reduced travel times result in reduced energy consumption, i.e., it assists in meeting the goal of energy conservation. Those R&D projects whose benefits have been evaluated yield annual energy savings between .33 and 1.37 billion gallons of jet fuel, over the time period 1995 to 2015, which equates to approximately $.22 and $.93 billion annually.

- Reduced energy consumption results in reduced emissions and contributes to environmental protection.

- Improved airline reliability allows both the airline industry and the airline users to become more efficient and contribute to the priority of economic health and productivity. Those R&D projects whose benefits have been evaluated yield annual delay savings between .3 and 1.5 million air carrier aircraft hours, over the time period 1995 to 2015, which equates to approximately $520 million to $2.6 billion per year; and between 32 and 150 million hours for passengers, over the time period 1995 to 2015, which equates to approximately $1.2 to $5.7 billion per year.

FAA's R,E&D program spans nine thrust areas and impacts the key priorities. The table on the following page provides a listing of representative R&D program areas describing the features, benefits to users, and priority to which they relate. A detailed discussion of the priorities follows.

- ***Economic Health and Productivity***. There is little doubt of the significance of aviation to the United States economy. With no new major airports planned in the near term, the FAA must expand the capacity of the current system while maintaining its safety and reducing inefficiencies (e.g., delays) to individuals, businesses, industry, and the economy as a whole. The products of aviation R&D can produce good paying, high tech jobs and in addition can provide a direct benefit and high rate of return through productivity, capacity, and safety.

More intelligent automated systems, higher capacity and more reliable communications, improved surveillance, enhanced detection and dissemination of weather information, more flexible navigation and landing systems, and improved human/machine interfaces will provide system improvements (e.g. - reduced delays and increased system capacity) and aid economic growth while keeping pace with technology.

Research is necessary to accommodate and integrate new technological developments and economic demands that help create markets for U.S. industry. With the increase in international competition, the aerospace and aviation industry must expand and modernize our aviation transportation system rapidly, or the U.S. will likely suffer economic consequences in terms of future risk to jobs and business leadership.

IMPACT OF R&D PROGRAMS VS. NATIONAL PRIORITIES (1 OF 2)

PROGRAM AREA	FEATURE	USER BENEFITS	PRINCIPAL NATIONAL PRIORITIES
Air Traffic Management System	♦ Ability to Handle Increased Traffic	♦ Reduce Operating Costs ♦ Reduce Flight Delays ♦ Accommodate Requested Routes	Economic Health and Energy Conservation
Oceanic ATC Automation	♦ Ability to Handle Increased Traffic	♦ Reduce Operating Costs ♦ Reduce Flight Delays ♦ Accommodate Requested Routes	Economic Health and Energy Conservation
Terminal ATC Automation	♦ Ability to Improve Aircraft Arrival Capacities	♦ Reduce Operating Costs ♦ Reduce Flight Delays	Economic Health and Energy Conservation
Airport Surface Traffic Automation	♦ Ability to Prevent Runway Accidents/Incidents	♦ Improve Safety on Airport Surface	Safety & Security and Economic Health
Aviation System Capacity Planning	♦ Ability to Provide Short Term Capacity Improvements	♦ Reduce Impact of Projected Traffic Bottlenecks	Economic Health and Energy Conservation
Traffic Alert and Collision Avoidance System	♦ Ability to Reduce Chance for Midair Collision	♦ Improve Safety in Air	Safety & Security and Technological Leadership
National Simulation Capability	♦ Ability to Validate Ideas ♦ Ability to Engage in Applied Research	♦ Reduce Development Risk ♦ Improve Human Factors	Technological Leadership and Economic Health
Aeronautical Data Link	♦ Ability to Fully Use Data Link Capability	♦ Reduce Miscommunication Between Pilot and Controller ♦ Reduce Congestion in Communication Links	Safety & Security and Economic Health
Satellite Navigation	♦ Ability to Use Satellites in Aircraft Navigation	♦ Reduce Operating Costs ♦ Reduce Delays	Economic Health and Technological Leadership
Terminal Area Surveillance System	♦ Ability to Define Next Generation Sensors	♦ Increase Terminal Area Capacity ♦ Increase Airport Safety	Safety & Security
Weather Detection/ Dissemination	♦ Ability to Reduce Impact of Weather	♦ Reduce Delays Due to Weather ♦ Reduce Operating Cost	Economic Health and Safety & Security
Airport Technology	♦ Ability to Improve Airport Planning and Design	♦ Reduce Airport and Airline Operating Costs ♦ Reduce Airport Surface Accidents	Economic Health and Safety & Security
Aircraft Systems Fire Safety	♦ Ability to Improve Fire Detection and Suppression	♦ Reduce Fire Related Injuries and Deaths	Safety & Security
Aircraft Crashworthiness	♦ Ability to Increase Passenger Protection From an Accident	♦ Reduce Crash Related Injuries and Deaths	Technological Leadership and Safety & Security
Propulsion and Fuel Systems	♦ Ability to Increase the Safety, Reliability, and Durability of Engine Installations and Fuel Systems	♦ Enhance Airworthiness ♦ Reduce Accidents	Technological Leadership and Safety & Security
Flight Safety/Atmospheric Hazards Research	♦ Ability to Improve Methods for Dealing With Ice, Lightning, and Other Hazards	♦ Reduce Accidents ♦ Develop Criteria for Aircraft Design	Technological Leadership and Safety & Security

IMPACT OF R&D PROGRAMS VS. NATIONAL PRIORITIES (2 OF 2)

PROGRAM AREA	FEATURE	USER BENEFITS	PRINCIPAL NATIONAL PRIORITIES
Aging Aircraft	♦ Ability to Detect, Control and Prevent Aircraft Structural Weaknesses	♦ Reduce Accidents ♦ Develop Criteria for Aircraft Design	Safety & Security and Economic Health
Aircraft Catastrophic Research	♦ Ability to Prevent Catastrophic Aircraft Failures	♦ Reduce Crash Related Injuries and Deaths ♦ Reduce Hull Losses	Safety & Security and Technological Leadership
Threat Detection	♦ Ability to Improve Weapons and Explosives Detection	♦ Eliminate Terrorism ♦ Increase Public Confidence	Safety & Security and Technological Leadership
National Airspace System Security	♦ Ability to Evaluate Security Improvement Ideas	♦ Reduce Security Threats	Safety & Security
Aircraft Hardening	♦ Ability to Reduce Damage From Explosives	♦ Reduce Explosive Related Injuries and Deaths ♦ Reduce Hull Losses	Safety & Security and Technological Leadership
Human Factors	♦ Ability to Reduce Human Errors or Inefficiencies	♦ Reduce Human Caused Accidents, Incidents and Inefficiencies	Safety & Security and Economic Health
Environment and Energy	♦ Ability to Reduce Noise and Air Pollution ♦ Ability to Conserve Fuel	♦ Improve Air Quality ♦ Reduce Noise ♦ Reduce Fuel Consumption	Energy Conservation and Environmental Protection
Innovative/Cooperative Research	♦ Ability to Jointly Develop New Ideas	♦ Stimulate Market Productivity ♦ Increase Technology Injection	Technological Leadership and Economic Health

♦ *Technological Leadership and Competitiveness.* A primary goal of the R&D program is to introduce technology advancements into the NAS without impeding aviation services or market mechanisms. Such technology advancements include new types of aircraft, aircraft avionics, and flight modes. Research is basic to long-term economic competitiveness since it supports development of enabling technologies at pre-competitive stages of the R&D process. Aerospace is a key to American technological leadership. Most government and independent organizations compiling "critical technologies" lists have included technologies essential to the aviation industry, such as propulsion technology, simulation, and automated guidance and control. Examples of FAA research activities to accommodate such advances include satellite navigation and communication systems for traffic over oceans or remote areas; more flexible approach control and landing systems; flight profile optimization techniques; and air traffic models and evaluation tools.

♦ *Aviation Safety and Security.* The overall goal in this area is to reduce the probability of accidents and terrorism. The research program is aimed at reducing runway incursions by 80 percent by the year 2000, improving collision avoidance procedures, and providing mechanisms to reduce human and equipment errors. Research relating to engine and aircraft design will improve aircraft airworthiness and crashworthiness and eliminate engine and propulsion system failures, aircraft fires, and aging aircraft safety concerns, such as structural weaknesses. Developing the safest, most efficient aircraft systems will translate into global sales for U.S. products. Human factors and aeromedical research projects have been established to reduce human error by 50 percent by the year 2000, to assess injury/fatality patterns and sequences, and to develop measures to reduce the incidence and severity of such patterns.

To maintain public confidence in the NAS, new security technologies are being developed to ensure the highest level of detection and prevention of criminal activities, while minimizing the disruption to air traffic services. Key initiatives include weapons and explosives detection measures, which are critical given the increased use of lightweight, nonmetallic materials in such devices; aircraft hardening techniques to minimize the impact of criminal activity; and airport design measures to minimize the risk and disruption to passengers, aircraft and aviation services.

♦ ***Energy Conservation***. Reducing energy consumption is a national policy and is critical to aviation. Because a large proportion of aircraft operating costs are for fuel (45 percent for air carriers, 40 percent for air taxi/commuter, 55 percent for general aviation (GA)), aviation is strongly impacted by fuel (especially oil) prices. In an effort to reduce energy consumption, R,E&D's program conducts research on atmospheric data, air traffic models, advanced materials and avionics, and enhanced automation will lead to more efficient routing and reduction of fuel consumption due to inclement weather and terminal area congestion. Finally, alternative aircraft design, engine, and propulsion concepts could significantly reduce aircraft energy requirements. These efforts will contribute toward conserving our limited national resources and will lessen U.S. dependence on foreign oil.

♦ ***Environmental Protection***. The expanding role of aviation in transportation has increased the importance of research aimed to protect the environment. Key areas of R,E&D research include methods to reduce engine emissions and noise levels, as well as decrease fuel usage through better traffic management and routes. In addition, more environmentally friendly fuels are being investigated for General Aviation (GA) aircraft, which play an important role in small towns and remote areas. Additional research is needed on clean, reliable, and cost effective engine/propulsion concepts for small GA aircraft.

Research is also required for the identification of new engine designs to reduce emissions and thus counteract the potential impact of international standards upon U.S. manufacturers. The aviation community is recommending development of engine/airframe technology that is 4 to 6 decibels quieter than Stage 3 aircraft. Thus, both domestic and international requirements dictate R&D for establishing stricter standards that will allow the United States to manufacture engines with reduced emissions and noise.

2.2 OVERALL BENEFITS

An initial estimate of the benefits associated with the implementation of the R,E&D program has been made; however, quantitative evaluations have been performed for only a subset of the projects. Conservative estimates of these partial benefits yield $80 billion in constant 1990 dollars accruing between the years 1993 and 2015. Benefits cut across many R&D projects. A brief discussion of the benefits in each of the nine thrust areas follows.

1. Capacity and Air Traffic Management

An evaluation of several of the major programs or groups of programs in the area of Capacity and Air Traffic Management has resulted in constant 1990 dollars benefits ranging from $1 billion to $3 billion per year from 1993 through 2015. Approximately 58 percent of these benefits are expected to come from reduced aircraft operating costs (e.g., crew utilization, fuel, and maintenance) with the remaining 42 percent from direct time savings to passengers. These benefits were based on conservative estimates of expected capacity gains and the resulting reductions in airline delays at 96 of the largest NAS airports. The savings come from:

- Reducing arrival delays by reducing restrictions over arrival fixes;
- Increasing the capacity by reducing arrival dispersions at arrival fixes and final approach;
- Increasing capacity and efficiency through reduced oceanic separation standards and the establishment of more efficient oceanic tracks; and
- Increasing airport capacity through new triple-parallel runway operations at eleven airports in the NAS.

The Air Traffic Management system directly impacts capacity and system safety. For example, the R&D program is presently developing a comprehensive surface safety system to prevent runway incursions and guard against pilot, controller, and ground vehicle operator errors. This program contributes to national safety, economic health and productivity, and energy conservation.

2. Communications, Navigation, and Surveillance

Enhancements in this area provide the basis for dramatic improvements in system performance, including: improved safety, reduced delays, and increased capacity. The system elements that provide these benefits will contribute to the United States technological preeminence.

The Global Positioning System (GPS), which was originally developed for military needs, will be available for civilian applications. The Satellite Navigation Program may allow the use of the GPS system as a primary means of air navigation.

Differential GPS, providing near Category I landing capabilities, could be available at those airports not currently scheduled to receive precision landing equipment. It will also allow general aviation aircraft not equipped with Instrument Landing Systems (ILS) or Microwave Landing Systems (MLS) avionics to use their en route navigation system to make precision landings.

3. Weather

Weather induced problems are the leading cause of system delay and a major contributing factor to aviation accidents. System capacity is lost or inefficiently distributed when weather restrictions cannot be accurately predicted. It is extremely important for airlines/pilots to know that it is going to snow at O'Hare later today, but it is more important to know exactly when and how much. Advance notice to ground crews of weather conditions can increase the effectiveness and efficiency of ground deicing. Improved oceanic weather forecasting, analysis of upper winds and temperature, and severe weather location will enhance flight planning and traffic management of routes, thus increasing the safety of the system. Timely and accurate weather information is critical to planning fuel and time efficient flight plans, which directly support national energy conservation, environmental protection, and productivity goals.

An evaluation of the benefits of the FAA's weather R&D initiatives total approximately $12 billion in constant 1990 dollars through 2006.

4. Airport Technologies

Airport technology research is expected to lead to techniques and design standards that will increase the benefits that accrue from the application of Airport Improvement Program (AIP) funds. For example, airport pavement improvements, runway layouts, terminal access and egress designs, and vertiport design standards will increase infrastructure life and system capacity.

During the period 1990 to 1999, an estimated $40.5 billion will be required to provide a safe, efficient, and integrated system of public-use airports under the FAA's National Plan of Integrated Airport Systems (NPIAS). Of this total, 42 percent, or $17 billion, will be spent on constructing, maintaining, and rehabilitating airport pavements. Research into pavement technology has the potential to provide large economic benefits. Including AIP matching funds, estimates for new and repaired pavements are about $1 billion per year. In contrast, only $2 million are being spent each year on researching new materials and designs. New designs (e.g., B-777 and MD-12) of larger, heavier, more efficient aircraft will most likely require additional runway loading capability. Improvements in pavement life of only 5 percent could eventually save tens of millions of dollars per year from reduced airport repaving costs.

5. Aircraft Safety

An important element in the public confidence is the continued safety record of the aircraft fleet. Aviation safety is the FAA's highest priority. This area focuses on developing technologies that maintain or improve aircraft safety in an evolving and demanding aviation environment. Equally, FAA is investing research funding to prevent or mitigate accidents such as the Sioux City, Iowa (Sioux Gateway Airport) catastrophic engine failure accident that took place in July 1989.

Aircraft fire safety and crashworthiness research will provide improvements that reduce fatalities, injuries, and hull loss and improve aircraft designs and maintenance and inspection procedures. This, in turn, will increase airline profitability and reduce costs to the public.

More efficient use of non-destructive testing of airframes could produce benefits on the order of $40 million per year. A similar improvement in the efficiency of engine maintenance could achieve $20 million per year in benefits. An additional $30 million per year could accrue due to the use of more effective inspection and avoiding any major air safety accidents through failure of airframe or engine. Research in aircraft fire safety might save about 30 to 35 fire fatalities per year in otherwise survivable accidents, and about 135 fatalities worldwide.

6. Security

Because of its high visibility, civil aviation continues to be an attractive target for terrorists or individuals with other criminal motives. The threat level has escalated from hijacking in the mid 70's to terrorist activities aimed at disrupting or destroying specific air transportation elements. The tragedy that befell the 270 victims of Pan Am Flight 103 over Lockerbie, Scotland, is one such act. The direct cost of this terrorist act is estimated at $430 million and does not include loss in revenues to the aviation industry due to public loss of confidence.

Even the threat of attack on a specific target is sufficient to cause significant disruptions and economic impact. For example, the events in the Persian Gulf during the first 3 months of 1991 caused a reduction of consumer confidence in the security of the system. As a result, scheduled air miles for domestic flights decreased by 5.2 percent, with international flight miles on United States carriers decreasing by 16.2 percent. In the face of this kind of threat, continued public confidence in the security of the aviation system in general, and U.S. airports and carriers in particular, is key to the continued use of these services and the resulting economic benefits.

The FAA initiatives in system security are designed to provide confidence and achieve benefits through the development of systems that prevent or deter hijacking and sabotage. An initial assessment of this area indicates benefits on the order of $40 million per year from the ability to reduce the cost of airport security services, while providing increased protection. The benefit of avoiding both the direct and indirect costs of just one major incident would be $80 million per year.

7. Human Factors and Aviation Medicine

While the outline of the future system is fairly clear, and new technology breakthroughs are always available and welcome, a major design challenge in realizing system improvements centers on the role of the human operators. For example, when new and higher levels of automation are introduced into the cockpit and in ground systems, the roles of the pilot, controller, and technician will change dramatically. Human factors research is required to ensure that this transition is affected smoothly and safely. In the cockpit, as on the ground, new technologies will introduce digital and analog signal mixes, graphics displays, and procedures that will change the nature of the displayed information and the actions and responsibilities of pilots and controllers.

Testing and evaluating these new concepts, systems, and equipment will require greater attention to human factors than even before. Research will need to address the interaction of the pilot with the aircraft systems, the controller with the air traffic management system, and the interaction between pilot and controller. Training facilities and approaches must be developed to handle the introduction and operation of new, sophisticated equipment and procedures. This research area is directed to ensuring that the design effectively integrates the human factor and the machine to realize the expected benefits.

Recognizing that 70 percent of accidents are caused by human error, FAA has set a goal of reducing human error by 50 percent by the year 2000.

8. Environment and Energy Conservation

Constructing quieter engines with fewer and less noxious emissions and using existing equipment more effectively can impact this area. Both approaches are reflected in projects contained in this chapter.

An assessment of the benefits associated with these projects is underway. The assessment of noise reduction strategies will be built around the value of meeting local noise restrictions with the least impact on airport capacity and therefore on system delays. Finding improved methods to reduce aircraft engine emissions will yield significant benefits, such as improving the quality of life for people living close to the airport environment. Engines that are quieter and cleaner burning will most likely increase the U.S. competitiveness in the global market.

9. Innovative and Cooperative Research

The goal in this area is to identify, develop, and share those technologies most likely to meet the aviation needs of the future.

Future improvements in the structuring and direction of innovative/cooperative research from early ground-breaking projects are very likely to play a key role in maintaining the United States' technical superiority in the worldwide aviation industry. The challenge to industry, government, and educational institutions to develop ideas and concepts for aviation can have significant, indirect economic benefits.

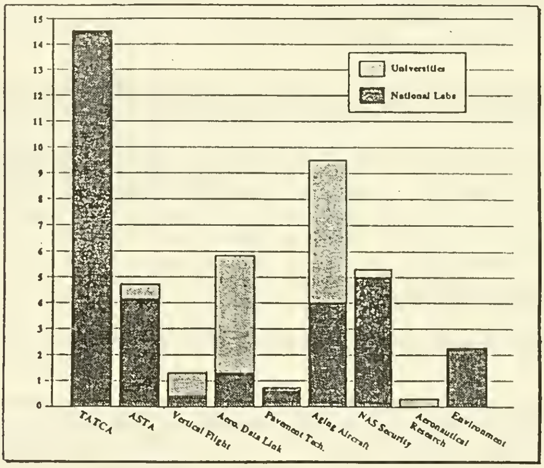
A Cooperative Program allows government agencies/laboratories/ universities to share research ideas and concepts while preventing the duplication of research activities, thus preserving scarce, valuable resources while building on each other's technology efforts.

This research is shared with National laboratories throughout Federal agencies, such as the Departments of Defense, Energy, and Agriculture, as well as numerous colleges, universities, and other non-profit organizations.

NASA provides two of the most notable National laboratories: NASA Ames and NASA Langley Research Centers. Together, these laboratories account for approximately $7 million in annual developmental research expenditures. Additionally, a substantial portion of the FY 1994 R,E&D budget will be used for research at Federally Funded R&D Centers, such as Lawrence Livermore National Laboratory, Sandia National Laboratory, Battelle Pacific N.W. Laboratories, Oak Ridge National Laboratories, and others.

Presently in its 21st year, the Joint University Program for Air Transportation Research is a coordinated set of three grants, jointly sponsored by NASA Langley Research Center and the FAA. The grant recipients are the Massachusetts Institute of Technology, Ohio University, and Princeton University. The goals of this program are consistent with the aeronautical interests of both NASA and the FAA in furthering the safety and efficiency of the National Airspace System. The annual cost of this program is approximately $250,000. The following graph depicts several of the major R&D Plan projects as a representative cross-section of annual expenditures to National laboratories and universities.

National Laboratory and University Expenditures for Representative R&D Project FY 1994



2.3 SUMMARY

The FAA's R&D program contributes significantly to five priorities (Economic Health and Productivity; Technological Leadership and Competitiveness; Safety and Security; Energy Conservation; and Environmental Protection). The economic benefits of those portions of the R&D program studied so far far outweigh its cost. In addition, the program has far reaching impacts in other industries in terms of stimulating new production and increasing jobs and competitive markets.

The R&D program underpins the future Capital Investment Plan (CIP) by addressing new and emerging technologies for inclusion into the NAS and providing for technology transfer to other areas, and permits the FAA to explore and develop new ideas. This will lead to the sharing of technologies with National Laboratories, industry, other federal agencies, and institutions of higher learning to avoid duplication of efforts and unnecessary expenditure of valuable R&D funds.

SECTION 3
THE FY 1994 R,E&D BUDGET REQUEST

3.1 INTRODUCTION

In order to realize the significant potential benefits and contributions to priorities discussed in Section 2, an 8.7 percent increase over the FY 1993 President's Budget, including a $12.6 million investment, is requested for FY 1994. The total FY 1994 R,E&D budget of $250.0 million will enable FAA to meet the broad objectives and requirements discussed in the DOT National Transportation Plan and the FAA Strategic Plan.

3.2 BUDGET ACTIVITY SUMMARY

	Budget Activity	Base	Invest	Combined FY 1994 Request
1	Management and Analysis	$13,498,000		$13,498,000
2	Capacity and Air Traffic Management Technology	66,338,000	10,601,000	76,939,000
3	Communications, Navigation and Surveillance	34,075,000	1,600,000	35,675,000
4	Weather	1,908,000		1,908,000
5	Airport Technology	7,081,000	428,000	7,509,000
6	Aircraft Safety Technology	41,175,000		41,175,000
7	System Security Technology	35,930,000		35,930,000
8	Human Factors and Aviation Medicine	27,256,000		27,256,000
9	Environment and Energy	5,385,000		5,385,000
10	Innovative/Cooperative Research	4,725,000		4,725,000
	Total FY 1994 Request	$237,371,000	$12,629,000	$250,000,000

3.3 MAJOR INCREASES FROM FY 1993

The following R,E&D technical programs have been increased for FY 1994 by $1 million or more over the FY 1993 appropriation level. Offsets in other programs result in a net increase of $20 million for FY 1994.

	FY 1994 Increase
Air Traffic Management Technology	$2,727,000
Oceanic Automation Program	4,604,000
System Capacity, Planning and Improvements	1,394,000
Modeling and Simulation	2,095,000
Communications	1,752,000
Satellite Navigation Program	1,713,000
Aging Aircraft	2,017,000
Aircraft Catastrophic Failure Prevention Research	1,864,000
Aviation Security Human Factors	1,894,000
Aircraft Hardening	3,312,000

3.4 IN-HOUSE CAPABILITY

The ability of the FAA to reach its R,E&D milestones and objectives is dependent upon the recruitment and retention of qualified personnel. To ensure continuing success in the development of state-of-the-art technologies (and their subsequent implementation into the National Airspace System) will require maintaining the cadre of highly trained multi-discipline specialists currently supporting these programs. These experts, with knowledge in engineering, computer science, mathematics, aviation medicine, and other technical fields, are critical to future progress in the R,E&D programs. In addition to achieving both broad and specific Agency objectives, the R,E&D programs, as previously discussed, also contribute to National priorities and improvements in international aviation.

The R,E&D work force for FY 1993 and FY 1994 is 645 FTP positions.

There are 147 FTP positions at Washington Headquarters. These positions are directly concerned with increasing the productivity and efficiency of today's human resources and capital investments and with developing the system concepts and components to meet future requirements for increased airport/airway system capacity and safety. System development personnel, located at FAA headquarters, are actively involved in the planning, direction, and conduct of system development research in the areas of capacity and air traffic management (ATM) technology; communications, navigation and surveillance; weather; and human factors research. Major functions include the development of highly technical programs; the coordination of these programs with domestic and international organizations; and with providing technical expertise in support of critical capacity and safety efforts.

A total of 405 FTP positions are located at the FAA Technical Center located in Atlantic City, New Jersey. This Center conducts tests and evaluations of projects in all phases of air navigation, air traffic control, airport design and development, aircraft safety, and aircraft/airport security. Projects include expanded efforts in airport security technology development and demonstration, structural integrity life management and nondestructive inspection techniques for aging aircraft, and human factors research relating to airway facilities maintenance. Operational test and evaluation personnel conduct research that encompasses capacity and ATM technology, communications, navigation and surveillance, airport technology, aircraft safety and system security technologies, human factors, and innovative/cooperative research.

The Civil Aeromedical Institute (CAMI), located in Oklahoma City, Oklahoma, currently has 93 FTP positions. CAMI is responsible for expanding FAA knowledge of the biomedical factors contributing to control and/or flight errors and incidents within the NAS and for developing control methods for these factors where possible. The aeromedical research function, is primarily directed toward human factors and aviation medicine.

3.5 SUMMARY OF PERSONNEL REQUIREMENTS

	FY 1992 Actual	Change	FY 1993 Estimate	Change	FY 1994 Request
FTP Positions:					
Washington Headquarters	146	0	146	+1	147
Technical Center	406	0	406	-1	405
CAMI	93	0	93	0	93
Total Positions	645	0	645	0	645
Full Time Equivalents (FTE)	751	-59[1]	692	0	692
Personnel Compensation (K$) and Benefits	46,122	-506	45,616	+1,304[2]	46,920
Travel	3,831	+363	4,194	+206[3]	4,400
Permanent Change of Station	395	+755	1,150	0	1,150
Other Objects	3,455	+500	3,955	+820[4]	4,775
Total Funding	$53,803	+1,112	$54,915	+2,330	$57,245

[1] FY 1993 net -59 FTE reflects + 19 FTE annualized for new FY 1992 positions, offset by -61 FTE annualized from the FY 1992 transfer of 61 FTP positions to the F&E appropriation and by -17 FTE associated with temporary positions.

[2] Nondiscretionary increases in personnel compensation and benefits total $1.3 million and are required to finance: (1) annualized wage adjustments effective for only part of FY 1993 as well as anticipated wage adjustments for FY 1994; (2) the annualized cost of the FY 1993 pay raise; and (3) associated benefits.

[3] The $206 thousand increase in travel accounts for inflation and a modest growth associated with the TATCA program.

[4] The additional $820 thousand in other objects provides for inflation, additional system engineering training, and the partial replenishment of computers and other personnel related equipment.

3.6 GENERAL COMMENT

The narrative justifications are presented in a format which includes a basis for request, the program request, benefits, major milestones, and funding summaries. The milestones provided beyond 1994 are shown for planning purposes only.

RESEARCH, ENGINEEERING AND DEVELOPMENT
(AIRPORT AND AIRWAYS TRUST FUND)
FISCAL YEAR 1994

Comparative Summary of Appropriation
(Dollars in Thousands)

		FY 1993 Approp	FY 1994 Request	Difference
1	Management and Analysis	$ 10,301	$ 13,498	$ 3,197
2	Capacity and Air Traffic Management Technology	$ 66,772	$ 76,939	$ 10,167
	Air Traffic Management Technology	3,645	6,372	2,727
	Oceanic Automation Program	6,845	11,449	4,604
	Terminal Air Traffic Control Automation (TATCA)	15,375	15,191	-184
	Runway Incursion Reduction/Tower Automation	10,598	10,981	383
	System Capacity, Planning and Improvements	9,765	11,159	1,394
	Cockpit Technology	5,325	6,251	926
	Vertical Flight Program	5,500	3,222	-2,278
	Modeling and Simulation	9,719	11,814	2,095
	Future Airway Facilities Maintenance Technology	0	500	500
3	Communications, Navigation and Surveillance	$ 32,069	$ 35,675	$ 3,606
	Communications	12,993	14,745	1,752
	Navigation	16,217	17,930	1,713
	Surveillance	2,859	3,000	141
4	Weather	$ 6,116	$ 1,908	$ -4,208
5	Airport Technology	$ 6,619	$ 7,509	$ 890
6	Aircraft Safety Technology	$ 36,365	$ 41,175	$ 4,810
	Aircraft Systems Fire Safety	5,456	5,697	241
	Aircraft Crashworthiness/Structural Airworthiness	4,155	4,112	-43
	Propulsion and Fuel Systems	2,525	2,784	259
	Flight Safety/Atmospheric Hazards Research	2,754	3,226	472
	Aging Aircraft	20,638	22,655	2,017
	Aircraft Catastrophic Failure Prevention Research	837	2,701	1,864
7	System Security Technology	$ 35,930	$ 35,930	$ 0
	Explosives and Weapons Detection	26,427	22,829	-3,598
	NAS Security	4,062	2,454	-1,608
	Aviation Security Human Factors	951	2,845	1,894
	Aircraft Hardening	4,490	7,802	3,312
8	Human Factors and Aviation Medicine	$ 26,901	$ 27,256	$ 355
	Flightdeck Human Factors	7,963	7,430	-533
	Air Traffic Control Human Factors	5,933	5,808	-125
	Airway Facilities Maintenance Human Factors	3,455	3,459	4
	Flightdeck/ATC System Integration	3,868	4,342	474
	Aircraft Maintenance Human Factors	1,412	1,984	572
	Aeromedical Research	4,270	4,233	-37
9	Environment and Energy	$ 4,750	$ 5,385	$ 635
10	Innovative/Cooperative Research	$ 4,177	$ 4,725	$ 548
TOTAL		$ 230,000	$ 250,000	$ 20,000

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Individual Budget Item/Resources/Page Reference

	Budget Item	Amount ($000)	Page No.
1.	Management and Analysis		
a.	Management and Systems Analysis	13,498	RED-26
	Total	$13,498	
2.	Capacity and Air Traffic Management Technology		
a.	Air Traffic Management Technology	6,372	RED-28
	Base: $4,071,000 Investment: $2,301,000		
b.	Oceanic Automation Program	11,449	RED-30
	Base: $7,449,000 Investment: $4,000,000		
c.	Terminal Air Traffic Control Automation (TATCA)	15,191	RED-32
d.	Runway Incursion Reduction/Tower Automation	10,981	RED-34
	Base: $9,981,000 Investment: $1,000,000		
e.	System Capacity, Planning and Improvements	11,159	RED-36
f.	Cockpit Technology	6,251	RED-38
g.	Vertical Flight Program	3,222	RED-40
h.	Modeling and Simulation	11,814	RED-42
	Base: $8,514,000 Investment: $3,300,000		
i.	Future Airway Facilities Maintenance Technology	500	RED-44
	Total	$76,939	
3.	Communications, Navigation and Surveillance		
a.	Communications	14,745	RED-46
b.	Navigation	17,930	RED-48
	Base: $16,330,000 Investment: $1,600,000		
c.	Surveillance	3,000	RED-50
	Total	$35,675	
4.	Weather		
a.	Weather Program	1,908	RED-52
	Total	$1,908	
5.	Airport Technology		
a.	Airport Technology	7,509	RED-54
	Base: $7,081,000 Investment: $428,000		
	Total	$7,509	

	Amount ($000)	Page No.
6. Aircraft Safety Technology		
a. Aircraft Systems Fire Safety	5,697	RED-56
b. Aircraft Crashworthiness/Structural Airworthiness	4,112	RED-58
c. Propulsion and Fuel Systems	2,784	RED-60
d. Flight Safety/Atmospheric Hazards Research	3,226	RED-62
e. Aging Aircraft	22,655	RED-64
f. Aircraft Catastrophic Failure Prevention Research	2,701	RED-66
Total	$41,175	
7. System Security Technology		
a. Explosives and Weapons Detection	22,829	RED-68
b. NAS Security	2,454	RED-70
c. Aviation Security Human Factors	2,845	RED-72
d. Aircraft Hardening	7,802	RED-74
Total	$35,930	
8. Human Factors and Aviation Medicine		
a. Flightdeck Human Factors	7,430	RED-76
b. Air Traffic Control Human Factors	5,808	RED-78
c. Airway Facilities Maintenance Human Factors	3,459	RED-80
d. Flightdeck/ATC System Integration	4,342	RED-82
e. Aircraft Maintenance Human Factors	1,984	RED-84
f. Aeromedical Research	4,233	RED-86
Total	$27,256	
9. Environment and Energy		
a. Environment and Energy	5,385	RED-88
Total	$5,385	
10. Innovative/Cooperative Research		
a. Innovative/Cooperative Research	4,725	RED-90
Total	$4,725	
TOTAL, R,E&D REQUEST	$250,000	

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 1a **R,E&D Plan No: APPENDIX B**

Program Title: Management and Systems Analysis

Amount: $13,498,000

Basis for Request:
These infrastructure activities provide visibility, accountability, coordination, and control of the FAA's Research, Engineering and Development (R,E&D) program. They support: (1) the effective and efficient research and development of FAA products; (2) effective R,E&D investment decisions; and (3) system planning and engineering in response to budgetary, programmatic, or technological changes (through the use of cost/benefit analyses and other operations research techniques).

The increased funding for FY 1994 is required to address growth in infrastructure costs at the Technical Laboratory Facilities and to provide nominal capability for R,E&D systems analysis and cost benefit studies.

Program Request:

R,E&D Management, Plan, and Control
The R,E&D management and control process and automated support system will be maintained, refined, and further integrated into the R,E&D planning and budgetary processes. Specific products will include the publication of the annual R,E&D Plan and integrated accomplishments from the previous year, technical/engineering schedule support for the R,E&D program, and the annual R,E&D Conference.

R,E&D Advisory Committee
The committee will provide the agency with reports, advice, and recommendations regarding the needs, objectives, plans, approaches, contents, and accomplishments with respect to the aviation research program. The committee considers aviation research needs in support of the FAA mission and addresses such areas as airport capacity, system safety, aircraft safety, aeromedical research, aviation security, and future ATC technology.

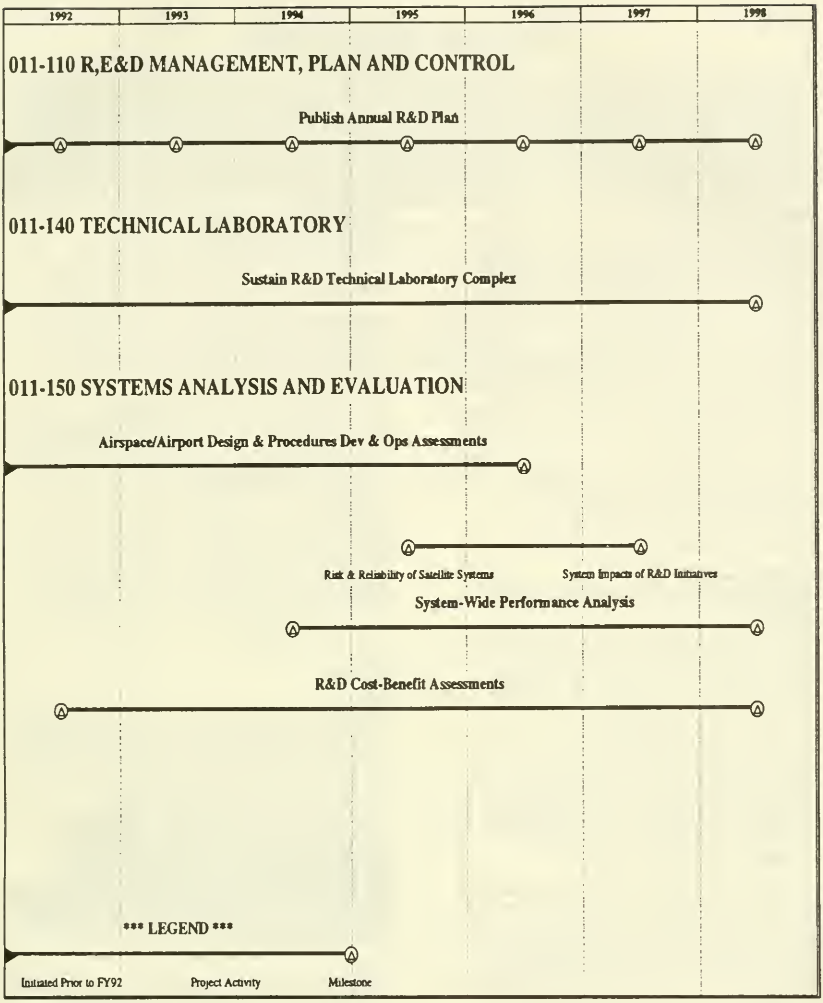
R,E&D Program Support
Provides for in-house support for system engineering and development, coordination of R&D international requirements, and NAS program analysis activities.

Technical Laboratory Facility
The FAA Technical Center operates and maintains laboratory facilities, test, evaluation, and integration efforts. Funding is required for maintenance, software licensing fees, support costs, and other costs associated with operating the technical laboratories.

Systems Analysis and Evaluation
This project will conduct system planning, capacity, delay and performance analyses, NAS-related issues, benefit-cost, or other studies in support of system investment, planning, engineering, development and operation. Major products include cost/benefit assessments to make prudent R,E&D program investments; management tools, methods and strategies for R,E&D cost containment and effective delivery of R,E&D benefits. The following analyses will be conducted: review of major R,E&D initiatives and impacts on system-wide performance; and improvement of air traffic management.

Benefits:
Provides for a more comprehensive, cost-effective R,E&D program through a systems engineering approach to research and development requirements, and the maintenance and enhancement of internal R,E&D management systems and processes. Information from systems analyses will support the agency's decisions concerning the annual expenditures of research and development, capital investment, and operations and support of the air transportation system.

These decisions represent the expenditures of billions of dollars of public funds. By better supporting these decisions, public funds will be used more effectively. Moreover, analyses will be used to support programs and project investments that reduce delays, and minimize hazards--which now account for billions of dollars annually in passenger time, airline operating costs, and accident costs. The end result of this program is to promote effective investments, enhanced decision-making, optimized system planning, and optimized system operation.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
10,418	10,301	13,498

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2a
R,E&D Plan No: 021-110
022-150
Program Title: Air Traffic Management Technology
Amount: $6,372,000
Base: $4,071,000
Investment: $2,301,000

Basis for Request:
As the public's demand for aviation services continues to increase at record rates, the current primarily manual method for managing the air traffic control (ATC) system is quickly becoming saturated. This saturation is generating higher delay levels for all users of the aviation system, including operators and airline passengers, and places a significant economic burden on the Nation in terms of both higher costs and the inefficient use of fossil fuel energy.

A national need exists to develop ATC flow management capabilities that will: (1) enhance ATC flow management operational efficiency and effectiveness and (2) more fully utilize existing system capacity.

Program Request:
Advanced Traffic Management System (ATMS)
The FY 1994 request will continue the planned enhancements to the National Flow Management Automated Demand Resolution (ADR) function, which automatically generates alternative flow management solutions to system congestion conditions.

The enhancements will incorporate enroute airspace factors as well as severe weather areas and active military airspace into the computer generated solutions. The complete ADR function is scheduled for field implementation in FY 1998.

The FY 1994 request will also support the continued development of the Strategy Evaluation (SE) function which will provide flow managers with real-time operational impact assessments associated with alternative flow management solutions. The SE function is scheduled for implementation in FY 1996.

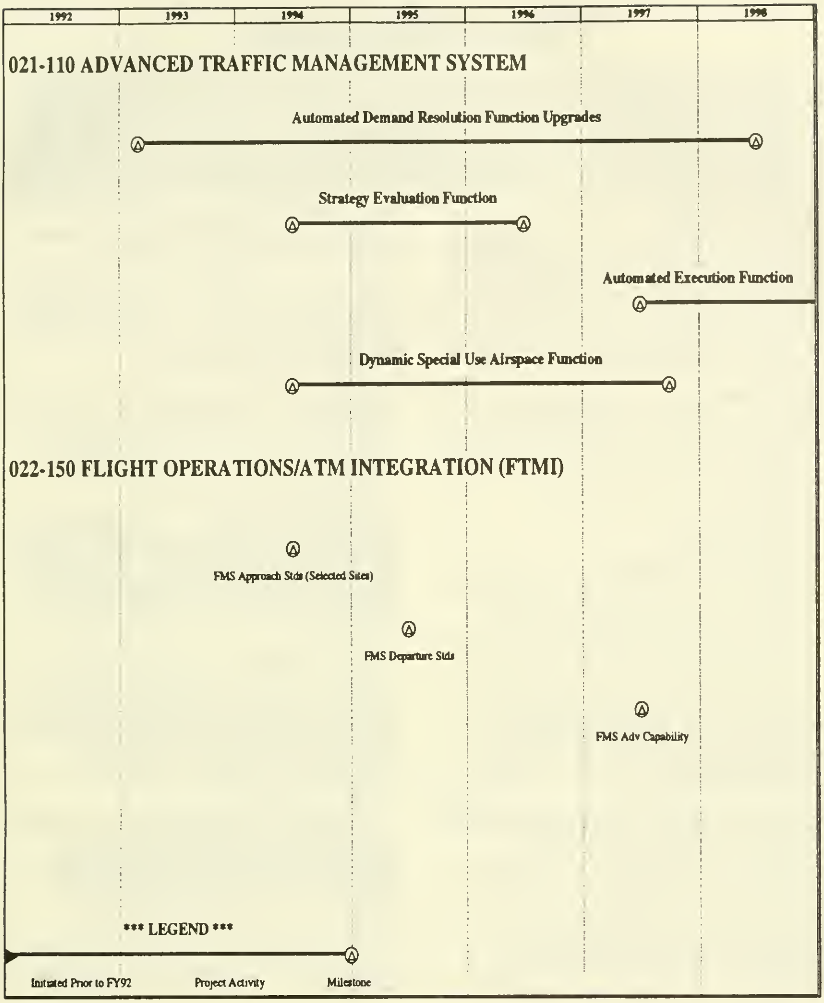
In addition, the FY 1994 request will continue the development of the direct and interactive computer interface to military Special Use Airspace planners to enhance the coordination, management, and utilization of both military and civil airspace.

Flight Operations/Air Traffic Management Integration (FTMI)
The FY 1994 request will complete the development of flight operations procedures and standards, including associated certification materials, to exploit existing flight management system (FMS) capabilities to enhance system capacity and flight efficiency in oceanic operations and curved approaches to specific airports.

This request will also support the FY 1994 development of flight procedures and standards for FMS-guided departures at specific airports for completion in FY 1995. In addition, the FY 1994 request will initiate work on national standards for planned nationwide implementation of FMS-guided terminal operations in FY 1997. Finally, the request will support cooperative work with industry to define advanced FMS capabilities to assure full integration of flight management and air traffic management operations, completion in FY 1997 is planned.

Benefits:
ATMS
The ATMS program directly addresses the national priorities of economic health and energy conservation. The enhanced capabilities of the ATC flow management system to effectively manage excessive air traffic demand through the coordination and implementation of more efficient national flow management solutions are projected to reduce system delays by 5-7 percent, with corresponding reductions in user operating costs and reduced fuel usage. The completed ATMS program is projected as providing $12.1 billion in benefits through the year 2015.

FTMI
The FTMI program addresses the national priorities of economic health and energy conservation by enhancing the precision and efficiency of aircraft operation. It addresses the national priority of safety and security by reducing the distractions associated with pilot/controller verbal communications workload.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
4,000	3,645	6,372

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2b		**R,E&D Plan No:**	**021-111** **021-140** **021-150**
Program Title: Oceanic Automation Program			
Amount: $11,449,000	Base: $7,449,000	Investment: $4,000,000	

Basis for Request:
Improve oceanic air traffic management and control by providing a satellite data link capability; a flexible track system, thereby improving efficiency; automated traffic planning and controller automated aids; and a testing capability to ensure safe and efficient integration of new oceanic automation technologies.

These improvements are needed in oceanic air traffic control and planning automation to keep pace with increased demand, controller workload, as well as to conform to international requirements with respect to communications, navigation and surveillance.

Program Request:
Oceanic ATC Automation
In FY 1994, the following will be developed: (1) a testing capability so that new enhancements can be tested prior to field implementation; (2) a cockpit interface to provide end-to-end inter-connectivity necessary to identify system inefficiencies and verify concepts and automation benefits from a total system view point; and (3) a situation display needed to replace the aging planned view display and provide a baseline necessary for a future capability of using a display for oceanic separation.

Automatic Dependent Surveillance (ADS)
In FY 1994, we will develop an automated (controller to service provided communicator) communications system, which provides an automated capability for sending preestablished data messages to pilots and controllers, thereby increasing reliability and reserving voice channels for emergency and nonroutine use.

A reduction in oceanic separation standards, providing both fuel and time saving routes for oceanic travel, will be evaluated.

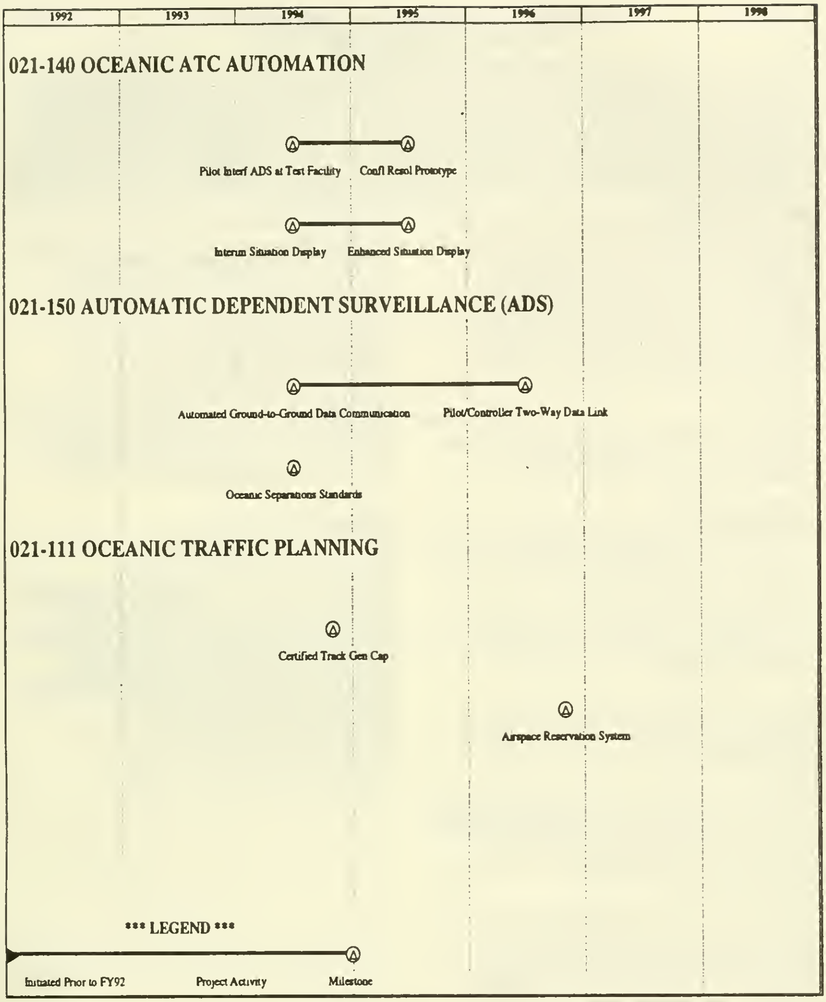
Oceanic Traffic Planning
In FY 1994, we will continue to develop (1) a certified track generation capability to ensure generated tracks meet international separation standards required for safety, and (2) an airspace reservation system to enhance airspace utilization leading to substantially reduced airline operating cost.

These Dynamic Ocean Track System (DOTS) functionalities will be integrated with the Advanced Traffic Management System (ATMS) in the near future.

Benefits:
Benefits will be gained in the national priorities of environmental protection, energy conservation, and economic health through the development of a comprehensive series of oceanic air traffic control and management improvements, based on user needs and technology opportunities. Substantial benefits in safety and flight operations efficiency will be obtained by providing oceanic controllers and planners with timely aircraft position reports, and a data communications link.

The use of ADS to tactically control aircraft, provide automated position report processing and analysis, and near real-time monitoring of aircraft movement will ultimately result in the savings of millions of dollars in airline user's costs, which will enhance environmental protection and energy conservation.

Studies have shown that the development of Oceanic Traffic Planning capabilities will provide a 5 to 7 percent improved fuel efficiency for users with automation necessary for handling increased traffic loads. Integration of Dynamic Ocean Track System functions with the ATMS will provide for fuel and time savings by ensuring that the planning of oceanic and domestic traffic is integrated.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
4,578	6,845	11,449

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2c **R,E&D Plan No: 021-180**

Program Title: Terminal Air Traffic Control Automation (TATCA)

Amount: $15,191,000

Basis for Request:
The need to develop automated tools to assist ATC personnel in expediting and optimizing traffic in the terminal airspace. The TATCA program will develop automation aids to assist air traffic controllers and supervisors at Centers and Terminal Radar Approach Control sites (TRACONS) which will result in increased capacity, safety and improved efficiency of aircraft operations.

The TATCA program consists of two projects: the Center-TRACON Automation System (CTAS) and the Controller Automation Spacing Aid (CASA).

Program Request:
Center-TRACON Automation System (CTAS)
The FY 1994 request will support the continued development of CTAS components. The CTAS project consists of the following components which will undergo parallel (but not concurrent) development: the Traffic Management Advisor (TMA), Descent Advisor (DA), Final Approach Spacing Tool (FAST), and Expedite Departure Path (EDP).

The FY 1994 request will support the limited national deployment of TMA. TMA will be used in centers to sequence and regulate aircraft into terminal airspace.

The FY 1994 request will continue the laboratory development of the DA, used by the centers to provide aircraft with fuel-efficient descent profiles. Limited national deployment of the DA is scheduled for FY 1997.

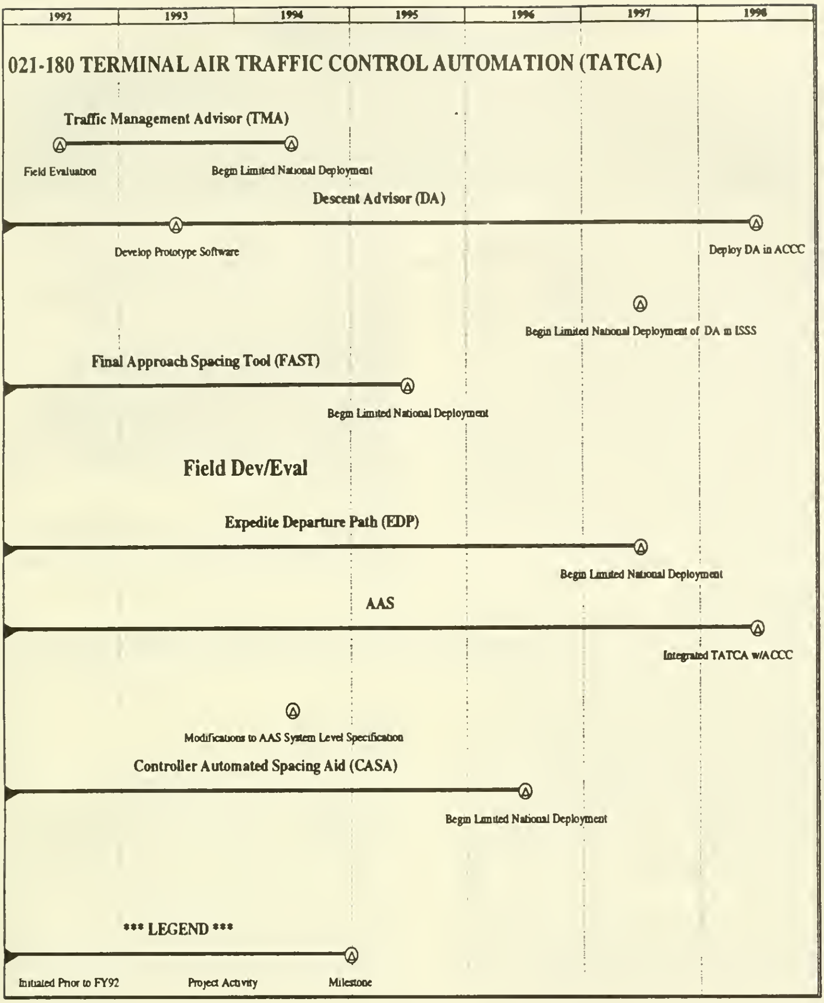
In addition, the FY 1994 request will support the continued prototyping of FAST, used in TRACONs to provide aircraft with speed and turn vectors for final approach to reduce excess spacing. Limited national deployment of FAST is scheduled to begin at Dallas-Fort Worth in FY 1995.

Finally, the FY 1994 request will support the modification of the Advanced Automation System's system level specification to incorporate TATCA capabilities to maintain increases and efficiencies gained using current HOST/ARTS/Off-line processor configurations.

Controller Automated Spacing Aid (CASA)
The FY 1994 request will continue software and national procedures development of the CASA applications. CASA is an enhancement of the Converging Runway Display Aid (CRDA) functionality, that was nationally deployed in FY 1992.

CASA will further extend the CRDA functionality to include non-precision and multiple Visual Flight Rules (VFR) approaches to converging, intersecting, or parallel runways as appropriate. Limited national deployment of CASA will begin in FY 1996.

Benefits:
This program addresses the national priorities for environmental protection, energy conservation and economic health. Substantial benefits will be derived by the U. S. airline industry as a result of decreases in fuel burn and overall flight duration along user-preferred flight paths. TATCA products will provide arrival traffic flow increases ranging from 15-40 percent during instrument meteorological conditions depending upon the runway configuration, representing substantial cost savings to aircraft operators annually.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
11,021	15,375	15,191

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2d

R,E&D Plan No: 021-190
021-210

Program Title: Runway Incursion Reduction/Tower Automation

Amount: $10,981,000

Base: $9,981,000 Investment: $1,000,000

Basis for Request:
To develop a comprehensive surface safety system utilizing ground sensor primary radar (ASDE-3), ARTS, differentially corrected global position system (DGPS) and AMASS to help prevent runway incursions. This enhanced system will provide controllers with automatically generated alerts and cautions in all-weather conditions. Data tags to identify all aircraft on the airport movement area will be provided on the controllers display. The system will be modular and capable of utilizing other primary radar inputs than ASDE-3. To integrate and consolidate existing airport environment displays and controls in air traffic control towers. Advances in surface surveillance, communications, and automation techniques are required.

Program Request:

Airport Surface Traffic Automation (ASTA)

During FY 1994, technical performance measurements at Boston's Logan airport of the surveillance data link and associated ground processing for transmitting DGPS aircraft position/velocity/heading data for integration with ASDE-3/AMASS will continue. A detailed system specification for incorporating DGPS data with ASDE-3/AMASS and aircraft/vehicle data tags is planned for completion in FY 1995. A pre-production and production RFP is scheduled for release in FY-96 with contract award in FY-97 and first ORD in FY-99.

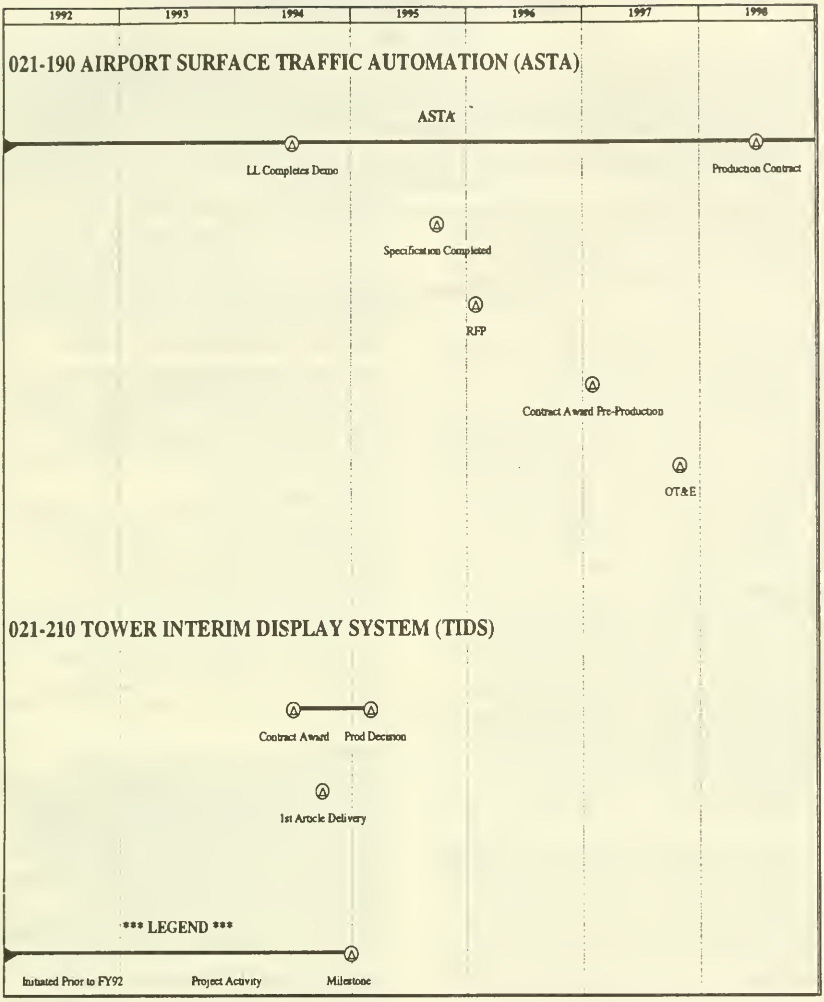
Tower Interim Display System (TIDS)

The Tower Interim Display System (TIDS) project will award a contract in FY 1994 for a prototype system. A test bed at the FAATC will be used for evaluation of tower display consolidation concepts. FY 1994 funding will refine TIDS production requirements and develop prototypes for field test and evaluation leading to a potential first article delivery in late FY 1994. A production decision is expected in FY 1995.

Benefits:
The program yields improved safety of ground operations by preventing runway incursions, provides automated backup and surface conflict alert to the tower controller, tools to accommodate increased traffic flow on the ground, and stimulates industry development and integration of surface automation.

A modest 5 percent improvement in surface movement efficiency can save approximately $40-60 million a year for the air carriers in fuel and direct operating costs. The target ground time savings for ASTA are at least 15 percent. The ASTA safety goal is an 80 percent reduction in runway incursions.

TIDS consolidates displays, improves controller scanning for information, and gains needed space in the towers in support of ASTA and other future tower systems.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
11,121	10,598	10,981

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2e **R,E&D Plan No: 021-220 021-230 023-120 024-110**

Program Title: System Capacity, Planning and Improvements

Amount: $11,159,000

Basis for Request:
To promote increased system capacity by producing the annual Aviation System Capacity Plan that addresses forecast in aircraft operations and by developing site specific plans for airport/airspace capacity enhancements.

To develop air traffic control procedures to reduce airport delays by more fully utilizing multiple-runway capacity during instrument meteorological condition.

To improve understanding of wake vortex strength, duration, and movement as a means for developing improved aircraft separation criteria. Provide quantitative guidance for domestic and international efforts to establish minimum vertical, lateral, and longitudinal aircraft separation standards.

Program Request:

Aviation System Capacity Planning
In FY 1994, the 1993-1994 Aviation System Capacity Plan will be produced, analyzing the benefits of new airport development, airspace changes and progress on implementing airspace procedures and new technology to support airport/airspace improvements. Terminal airspace design plans will be produced for three sites: Greater Pittsburgh, Philadelphia, and Nashville. One en route airspace design plan will be completed for the Memphis area.

Multiple Runway Procedures Development
In FY 1994, air traffic procedures for instrument approaches to dual parallel runways spaced at 3,000 feet apart using precision runway monitor (PRM) and offset localizer, and dual and triple parallel runways using airport surveillance radar and high-resolution displays with controller alert aid will be approved for operational use.

Realtime simulations will be initiated to develop procedures for instrument approaches to dual and triple parallel runways spaced at 3,000 feet using PRM and advanced navigation systems such as microwave landing system and global positioning system.

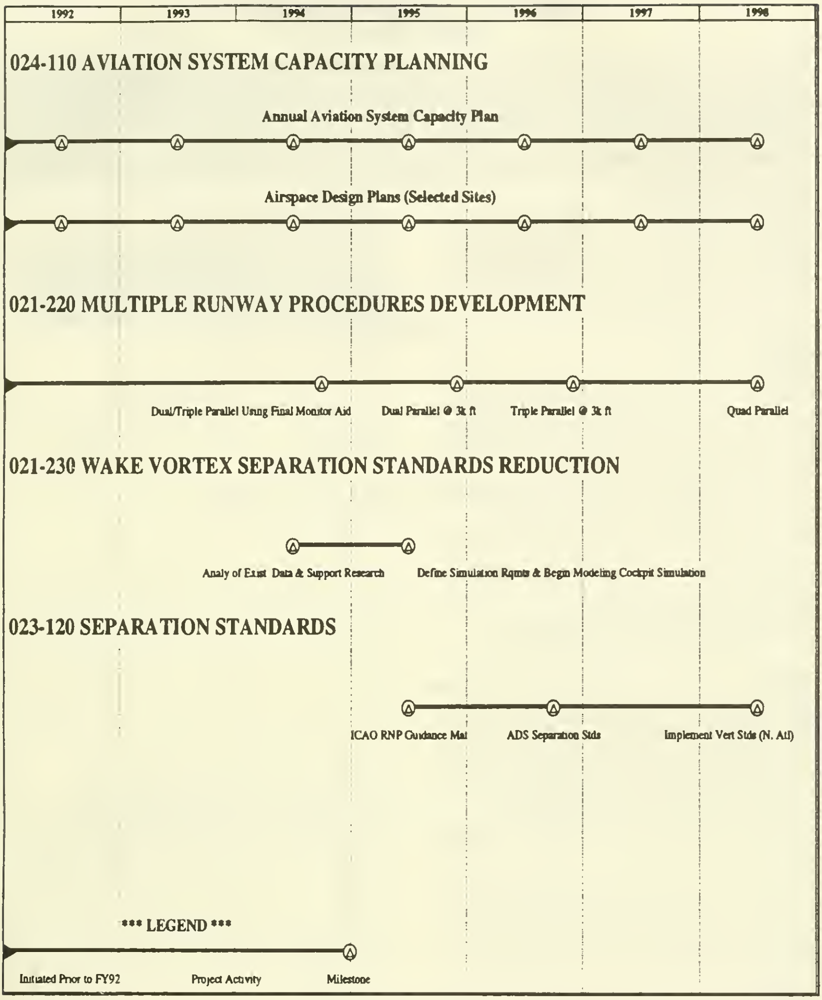
Wake Vortex Separation Standards Reduction
The joint effort between FAA and NASA to develop a computer simulation of wake vortex encounters involving heavy aircraft is scheduled for completion in FY 1995. Existing wake vortex characterization data will be analyzed, simulation requirements will be defined, and modeling will begin.

The Center-TRACON Automation System (CTAS) project which contains a final approach spacing tool will be used as a tool to quantify the benefits of modifying wake vortex separation standards.

Separation Standards
Work continues to support the reduction of vertical separation standards above 290 flight level from 2,000 feet to 1,000 feet. Implementation in the North Atlantic is planned for 1998. Guidance to support international standards for area navigation separation standard and for Required Navigation Performance will be completed in 1995-1996. Development of separation standards in oceanic airspace using automatic dependent surveillance will be completed in 1996-1997.

Benefits:
The potential economic savings for aircraft operations systemwide from the implementation of airport and airspace design teams are in excess of $1B per year. The approval of procedures for instrument approaches to dual, triple and quadruple parallel runways will result in reduction of aircraft delays, aviation fuel consumption, and polluting aircraft emissions, as well as significant cost savings to airlines by as much as $2B dollars per year.

The reduction in aircraft in-trail separation standards will increase the economic health of the National Airspace System by optimizing aircraft arrivals and departures. It has been estimated that the reduction in vertical separation standards provides $60M per year in fuel savings for North Atlantic routes alone.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
8,535	9,765	11,159

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2f	**R,E&D Plan No: 022-110**
Program Title: Cockpit Technology	
Amount: $6,251,000	

Basis for Request:
Develop, demonstrate, and support the implementation of a Congressionally mandated airborne collision avoidance system. The aviation community will be provided with the standards and certification guidance materials required for implementation.

Program Request:

TCAS I

TCAS I, a proximity warning system provides traffic advisory information on a cockpit display. The traffic advisory indicates the range, bearing, and, if Mode C equipped, the relative altitude of the intruder aircraft. The FAA Traffic Alert and Collision Avoidance System (TCAS) rule mandates the use of TCAS I on all turbine-powered commuter aircraft with 10 to 30 passenger seats by February 9, 1995.

During FY 1994 the minimum operational performance standards for TCAS I will be updated to support the implementation of TCAS I in the National Airspace System (NAS).

TCAS II

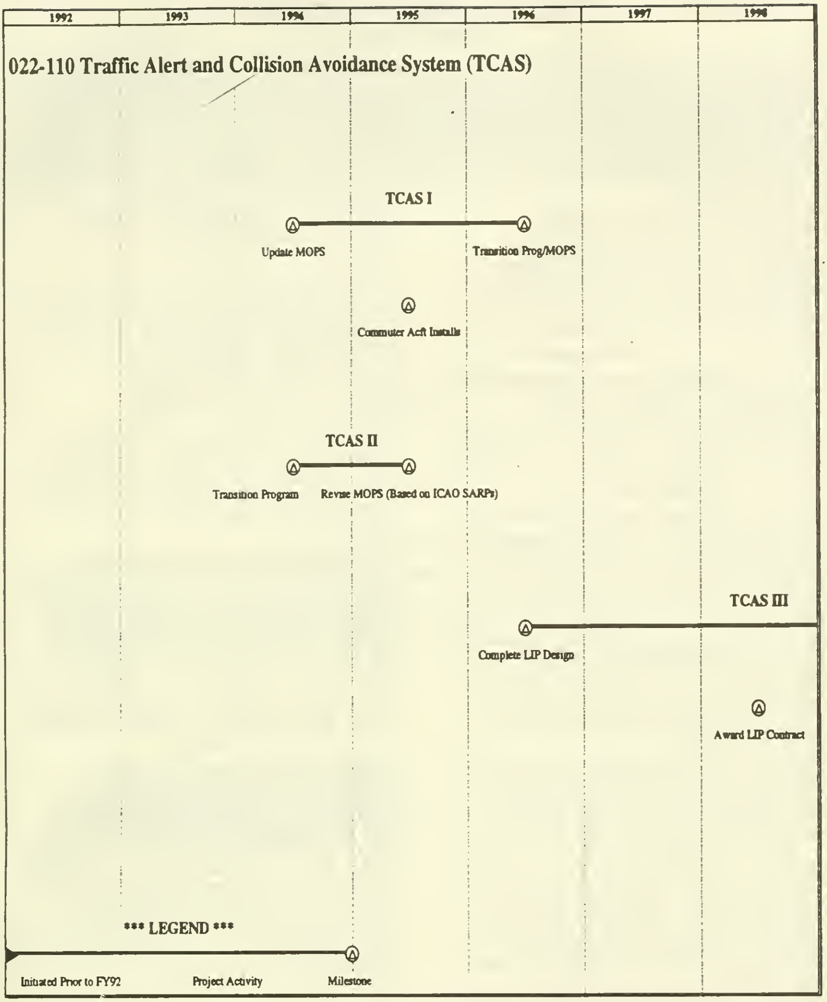
TCAS II provides traffic advisories and resolution advisories in the vertical plane (e.g., CLIMB) for purposes of ensuring safe separation from aircraft on collision or near-collision courses. In accordance with a Congressional mandate to equip all commercial turbine-powered aircraft with TCAS II by December 30, 1993, the FAA is continuing to provide technical support during the transition of TCAS II into the NAS.

During FY 1994 the TCAS program will provide continuing engineering and operational support to the aviation community during the implementation period.

TCAS III

TCAS III equipment is being developed to generate traffic and resolution advisories in both the vertical and horizontal planes (e.g., TURN RIGHT). The TCAS III requirements definition, validation, and design development for the Limited Implementation Program (LIP) will be completed in FY 1996.

Benefits:
This program contributes significantly to the National priority of safety by providing an independent aircraft separation assurance back-up to normal air traffic control operations thereby reducing the potential of a mid-air or near mid-air collision in the NAS.



022-110 Traffic Alert and Collision Avoidance System (TCAS)

FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
5,218	5,325	6,251

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2g **R,E&D Plan No: 022-140**

Program Title: Vertical Flight Program

Amount: $3,222,000

Basis for Request:
FY 1994 R,E&D funding allows for continuation of flight testing, simulation, and procedural development efforts. These activities support further safety improvements for conventional rotorcraft and advanced vertical flight aircraft operating within the National Airspace System (NAS).

FY 1994 funded activities are aimed at critical, near term objectives necessary to enable development of an all-weather vertical flight infrastructure to complement industry's effort to develop a market responsive short-haul, passenger/cargo transportation system.

Program Request:
In FY 1994, flight test development will commence identifying critical requirements for the safest and most effective IFR terminal approach and procedures required for vertical flight passenger and cargo operations. These new, steep angle approach and departure procedures (TERPS) will also significantly reduce the environmental impacts from aircraft noise, help reduce noise complaints and alleviate community concerns about intrusive, overhead flights.

Work will be initiated in FY 1994 to develop procedures, route standards, and vertiport design requirements recommended by the Atlanta Olympics vertical flight system study.

Simulation-based assessments into low altitude, obstacle-rich environment operations will continue. Begun in 1993, this four year research effort supports requests from emergency medical services (helicopter air ambulances), airborne law enforcement, and corporate flight operators to improve flight safety in urban environments.

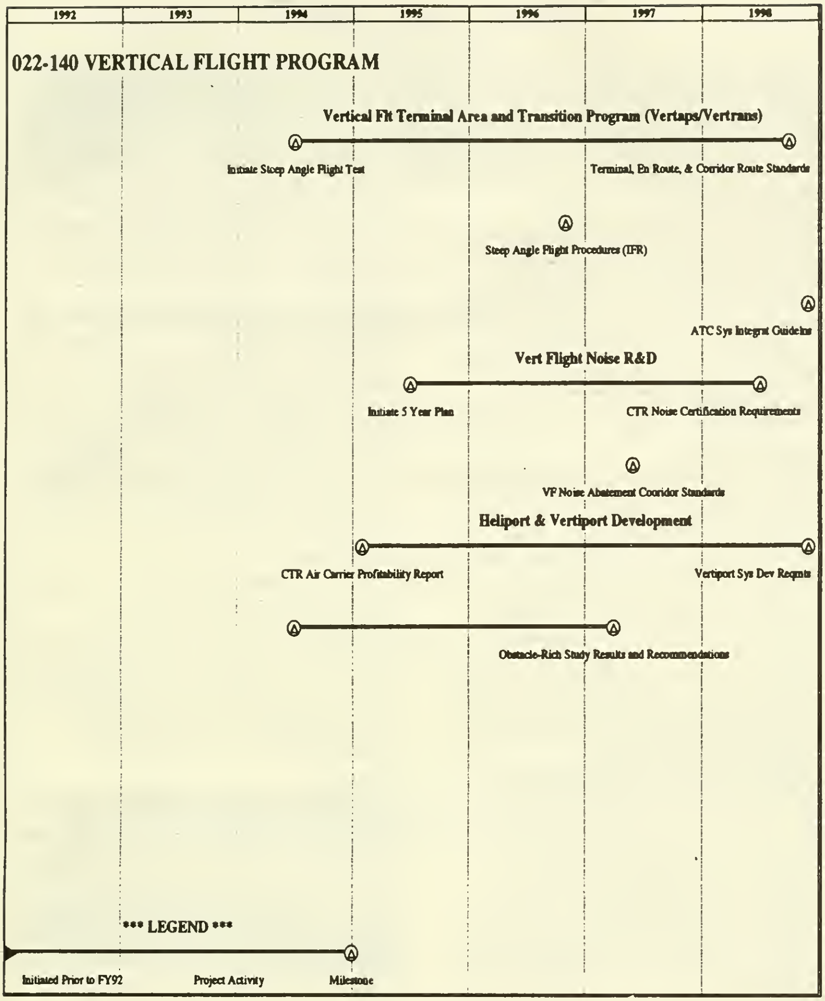
The simulation testing of proposed vertical flight aircraft display formats will continue with completion in FY 1996 of a technical report to support certification requirements. Workshops and technical conferences will be conducted during FY 1994 to establish requirements for a joint industry/local government advanced vertical flight technology demonstration program.

The technical reports and recommendations from these workshops will lead to national level guidelines currently planned for publication in 1995 and 1996. Analytical efforts of vertical flight short-haul transportation system benefits to the NAS will continue in FY 1994.

Benefits:
This effort is directed at reductions in national delay costs, supports the national goals for multi-modal transportation development, and helps foster national aviation technology leadership.

The expanded use of vertical flight technology, with its inherent greater operational flexibility, will increase NAS capacity. Significant reductions in the estimated $5 billion national annual aviation delay cost could be realized if reliable vertical flight-based short-haul passenger service could be established. U. S. aviation technology leadership will be fostered by FAA initiatives to provide a market responsive infrastructure.

Environmental improvements will be realized through rotorwash and noise control and abatement designs and techniques. Safety will be improved for low altitude operations (500 to 3,000 feet above the ground). Economic health from increased vertical flight operations will benefit from heliport and vertiport design improvements. Transportation system access will increase from the establishment of a network of low cost vertiport-based feeder systems.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
5,206	5,500	3,222

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2h **R,E&D Plan No: 025-110**
025-120
Program Title: Modeling and Simulation **025-130**

Amount: $11,814,000 Base: $8,514,000 Investment: $3,300,000

Basis for Request:
National Airspace System (NAS) modernization requires modeling and simulation to solve complex operational problems and systems technology issues. The modeling and simulation needs include accurate and cost-effective means to: predict and optimize future ATC system performance; analyze the effectiveness of ATC technologies; automate national traffic flow planning and decision making; improve airspace use, increase fuel efficiency; and decrease congestion, flight times and controller work loads.

Program Request:
National Simulation Capability (NSC) will permit long term NAS design and decision making through evaluation of future operational concepts, human interfaces and failure modes. NSC will link previously developed future NAS component simulations into a Distributed Interactive Simulation network. In FY 1994, NSC will conduct experiments in future ATM concepts including traffic flow management, oceanic control, satellite navigation, communications and data link integration, and integration of surface traffic management automation programs. This request will also develop the NSC architecture, protocols and standards.

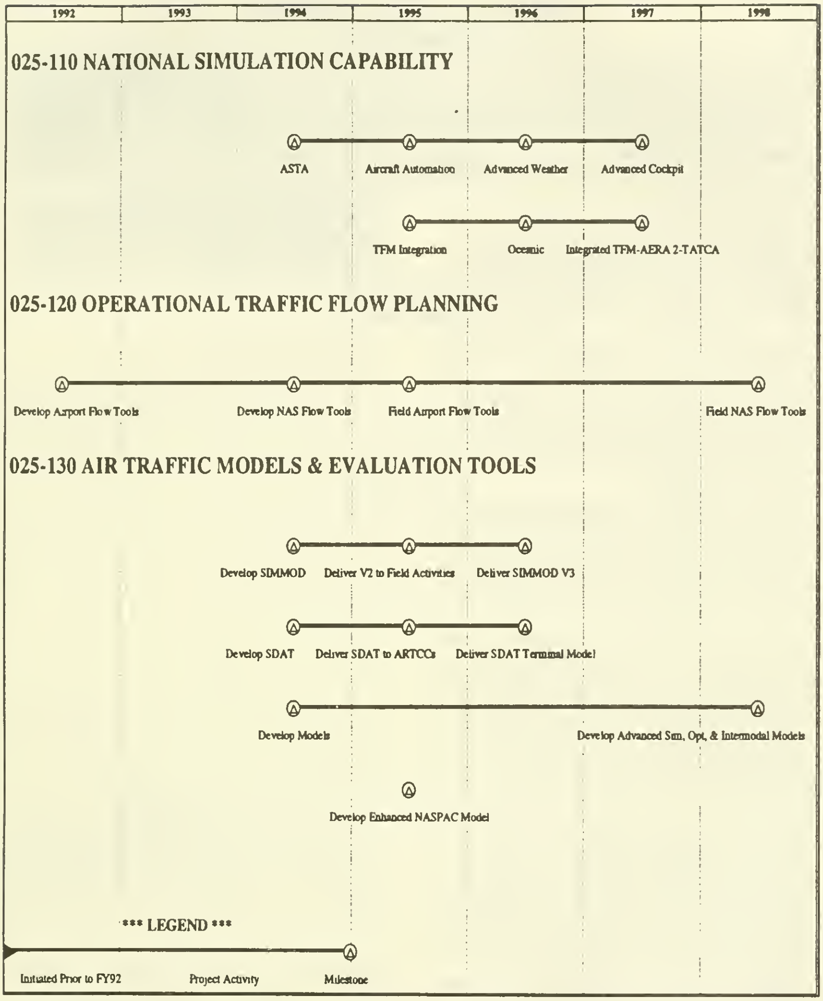
Operational Traffic Flow Planning (OTFP) will develop near-term national traffic flow planning and decision support tools for operational use at FAA's Air Traffic System Command Center. OTFP's operations research products will: plan routes that minimize time, fuel, and weather hazards; determine optimum traffic sequencing, routing and flow plans; evaluate user schedules, airport capacity, weather and ATC requirements; enable joint FAA-user planning; and simulate traffic plans to predict problem areas and results of corrective plans.

OTFP will provide specific tools for: traffic demand analysis, optimized route and flow planning; user-preferred flight profile planning, optimized re-routing; continuous, fast-time traffic simulation; knowledge-based flow strategies, and planning traffic operations with airlines operators. In FY 1994 OTFP will deliver these capabilities for flow planning between major US airports, and begin development to extend these tools to all airports in the NAS by 1998.

Air Traffic Models and Evaluations Tools will enable evolutionary improvements in analytical, simulation and optimization models for airspace and airport capital investment and traffic procedures evaluation. The FY 1994 request will develop improvements for the FAA's Airport and Airspace Simulation Model, National Airspace System Performance Analysis Capability, and Sector Design Analysis Tool. This request will also convert these models to standard hardware and software designs to permit cost-effective data-sharing and model integration.

The main FY 1994 objective is to create user friendly, efficient and interactive models to assist air traffic control planners in evaluating new airspace configurations and impacts on delay, traffic flow, fuel burn and controller workload. This technology will be placed into use at regional offices and ARTCCs to develop major airspace, airport and procedural improvements.

Benefits:
NAS development and capital investment risks will be reduced. Faster, more cost effective infusion of NAS concepts and advanced technologies into the R,E&D program will be achieved. Overall system capacity will be increased over the present fixed and preferred route systems. Near-term improvements in fuel conservation, NAS throughput and route flexibility, reduced travel times and delays will result. Systematic daily planning with users will provide improved capacity nationwide.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
9,867	9,719	11,814

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 2i **R,E&D Plan No: 026-110**
026-120
Program Title: Future Airway Facilities Maintenance Technology **026-130**

Amount: $500,000

Basis for Request:
With the emergence of new aviation technology and its subsequent implementation into the aviation industry, a new approach to systems maintenance will also be required to ensure the future integrity of the National Airspace System (NAS).

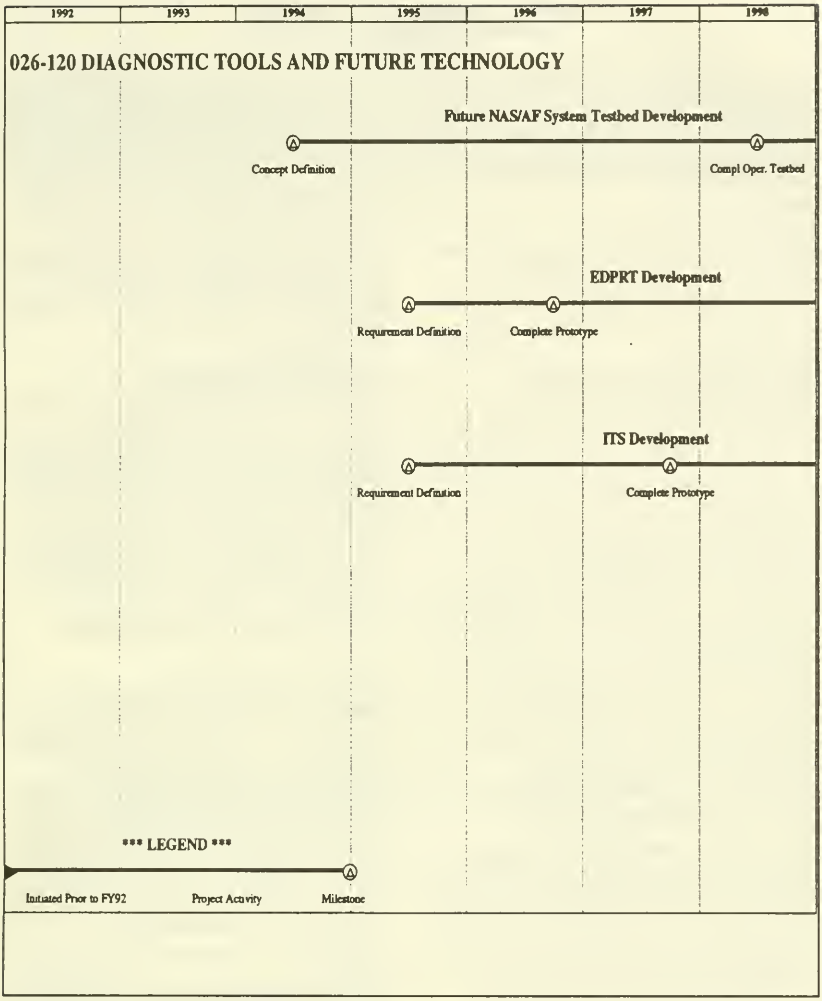
This program will evaluate future NAS technologies and their impact on the Airway Facilities function and: (1) develop prototypes of expert systems and diagnostic/resolution tools; (2) explore new concepts in maintenance methodology; and (3) improve organizational effectiveness.

Program Request:
Diagnostic Tools and Future Technology will explore the application of advanced technology to the total Airway Facilities (AF) environment. In FY 1994, requirements definition and a plan for development of a Future NAS/AF System Testbed will be initiated.

Using the requirements defined in the FY 1994 study effort, testbed development is expected to begin in FY 1995. Operational scenarios will be constructed for use with the testbed to evaluate alternative applications of the future AF mission, including monitoring and managing of both ground-based and satellite-based NAS facilities.

Coincident with testbed development, other advanced technology initiatives will get underway. They include development of alternative system management architectures and advanced technology tools to maintain the NAS. These comprise Expert Diagnostics, Predictive/Resolution Tools (EDPRT's), an Intelligent Tutoring System (ITS), and Operational Control Center (OCC) computer models. It is envisioned that these tools will be integrated into the testbed to enhance the future AF operational environment.

Benefits:
This program provides a long-term systematic approach to ensuring the efficient future integration of Airway Facilities with new technology implemented within the NAS. The development of a testbed for prototyping future operational centers will lower maintenance cost, reduce mean down time of future systems, and improve productivity.



FUNDING SUMMARY ($000)

FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
0	0	500

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 3a

R,E&D Plan No: 031-110
031-120
031-130

Program Title: Communications

Amount: $14,745,000

Basis for Request:
The Aeronautical Data Link, Satellite Communications and NAS Telecommunications programs will provide pilots and controllers with improved digital air-ground communication services using satellite, VHF and Mode S data link.

Program Request:
Aeronautical Data Link Program
Data Link standards development continues with International Civil Aviation Organization (ICAO) and U.S. standards organizations in FY 1994. Validation testing will be completed in FY 1995, with industry participation, to prove the benefits of the Aeronautical Telecommunications Network (ATN) standard. This will permit manufacturing of certifiable ATN equipment (ground & airborne) for domestic and international use. The final report for network management concept on the efficient use of the ATN system will be completed in FY 1996.

Development and end-to-end validation of an initial set of Oceanic, En Route and Terminal Air Traffic Control (ATC) data link services will continue in FY 1994 in conformance with national standards developed for data link applications. R&D of enhanced ATC and flight information services will prepare for evolving automation capabilities requiring data link services for optimum functional performance.

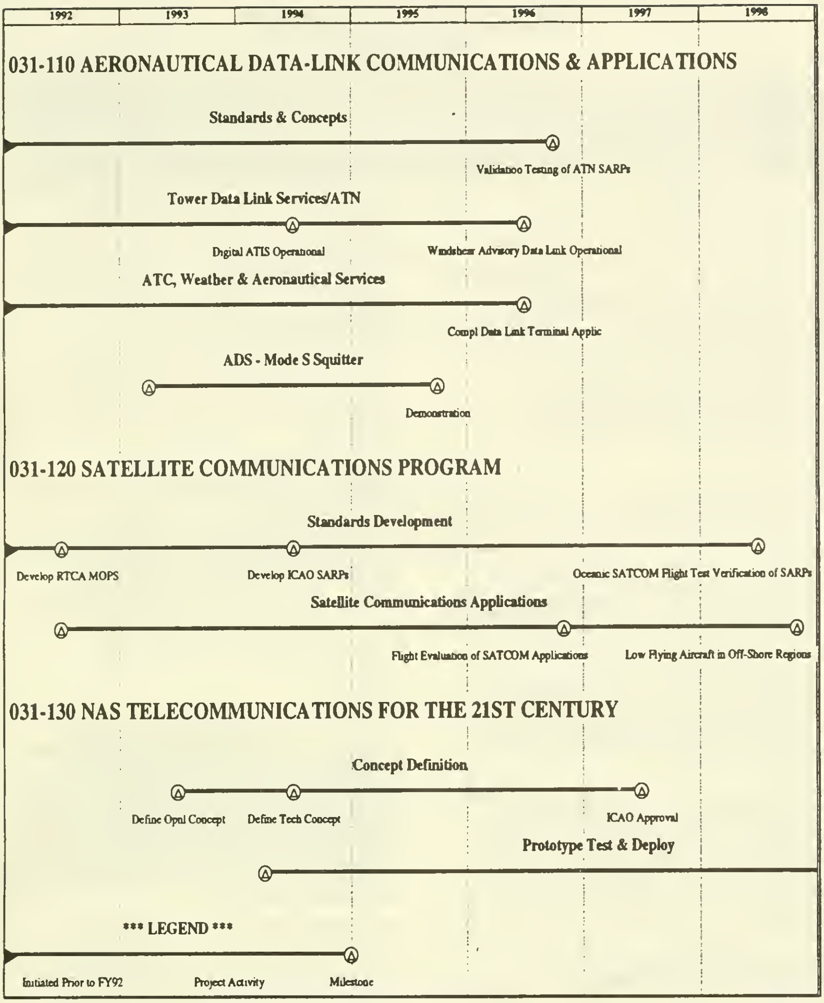
Enhancements to the Digital Automatic Terminal Information Service (ATIS) and Pre-Departure Clearance (PDC) data link services will be developed to improve controller and pilot operations at all PDC and Digital ATIS airports. Digital ATIS enhancements will include synthesized voice output to relieve controller workload. In FY 1994: Research and demonstration of the data link windshear advisory service will continue in preparation for implementation in FY 1996; and additional weather/flight information services, including real-time graphical weather services for pilots, will be developed.

In FY 1994, research and development continues in surface/air surveillance applications. This research uses Automatic Dependent Surveillance techniques based on Global Positioning System aircraft position information and employs the Mode S Squitter function for delivery of this data for airport surface and terminal surveillance.

Satellite Communications
The initial development of ICAO Standards and Recommended Practices and the U.S. Minimum Operational Performance Standards and end-to-end system performance requirements for the Aeronautical Mobile Satellite Service will be completed in FY 1994. Testing to verify these standards and oceanic air traffic service performance will continue through 1994 with completion scheduled for FY 1998. The aviation air-ground satellite communications must operate with other air-ground communications through the ATN. Verification testing of the ATN airborne router is scheduled for completion in FY 1996.

NAS Telecommunications
Because of spectrum congestion and other problems, the VHF air/ground radio system is in need of improvement worldwide. In 1994, ICAO will consider proposals for approaches to VHF improvement. Work to prepare the U.S. position for the ICAO conference and to formulate plans for implementation in the U.S. will lead to definition of an operational concept for the system in 1993. In 1994, the technical concept will be completed to support the U.S. position. ICAO approval of design specifications is expected in 1997. Deployment is expected in the year 2000.

Benefits:
Data link services will reduce radio congestion, promote safety, capacity and efficiency benefits when integrated with the Advanced Automation System and Automated En Route ATC enhancements. Increased communication and airspace capacity from data link improvements will result in an estimated economic benefit in fuel savings of $100 million per year.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
21,833	12,993	14,745

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 3b

R,E&D Plan No: 032-110
032-120

Program Title: Navigation

Amount: $17,930,000 | Base: $16,330,000 | Investment: $1,600,000

Basis for Request:
This program develops satellite-based radionavigation systems, such as the Global Positioning System (GPS), to support worldwide civil aviation improvements. It also provides long-term navigation planning and support for the preparation of the Federal Radionavigation Plan (FRP) and analyzes emerging navigation technologies and concepts to satisfy future aviation requirements. The program will increase system capacity while promoting global technological leadership in satellite-based navigation.

Program Request:
Satellite Navigation
In FY 1994, the FAA will authorize the use of GPS as a supplemental aviation navigation system for oceanic, domestic en route, terminal, and nonprecision approaches to improve navigation accuracy and routing flexibility. The following actions will be undertaken in FY 1994 to ensure maximum safe use of these signals by civil aviation:

GPS Minimal Operational Performance Standards (MOPS) will be completed. These MOPS will meet requirements for Required Navigation Performance (RNP) to at least near Category I approach minimums.

Tests will be conducted to prove that GPS--augmented with Local Area Differential GPS (LADGPS)--can meet Category I approach minimum guidance requirements. One LADGPS will be required at each airport to provide service to all runways. This effort will allow private Category I approach minimums using LADGPS by FY 1995.

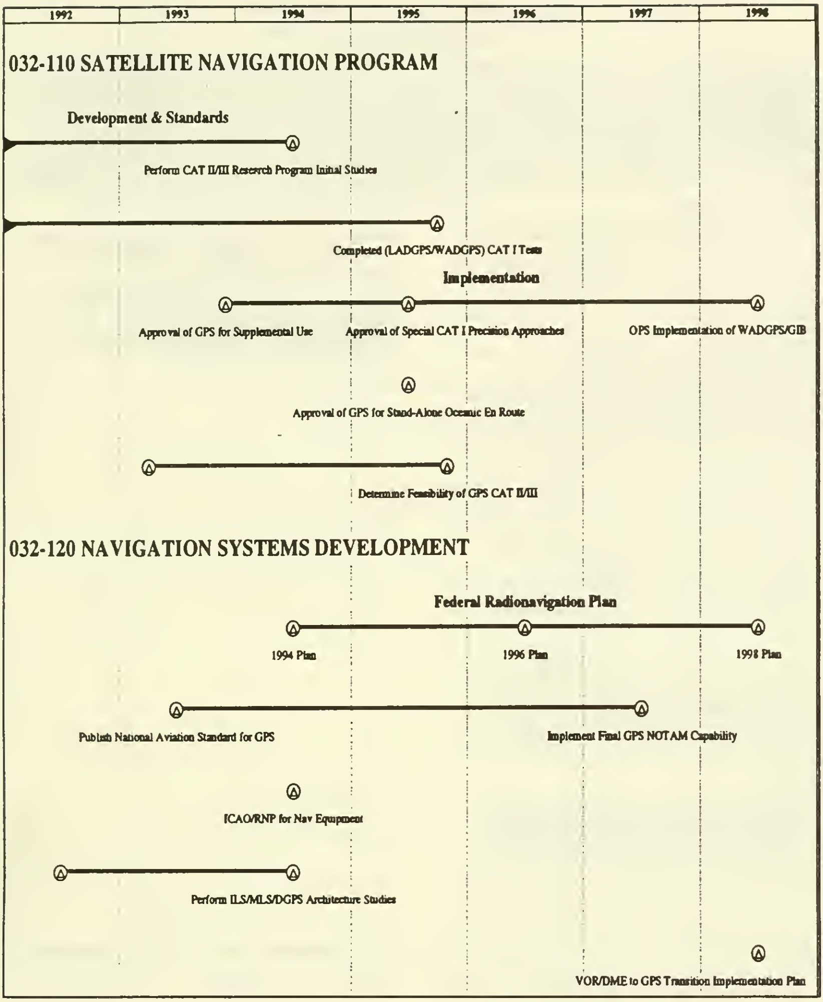
GPS Integrity Broadcast (GIB) capability will be assessed, including the ground base monitors positioned across North America, the failure detection method, and the satellite broadcast alerting capability. Wide Area Differential GPS (WADGPS) will continue to be developed. WADGPS will provide accuracy improvements to the GPS signal. Transmission of a GPS-like signal through geostationary communications satellites to aircraft will be demonstrated. This signal will also contain the GIB and WADGPS information and will improve the availability of GPS to civil aviation users. This activity, along with GIB and WADGPS efforts, will lead to an augmented GPS that will meet all RNP requirements except precision approach and landing.

Aggressive research and development will be conducted with industry and academia to determine the feasibility of using GPS based systems to satisfy Category II/III precision approach requirements by FY 1995.

Navigation System Development
The FY 1994 request supports completion of work on the 1994 Federal Radionavigation Plan, ICAO Required Navigation Performance capabilities for approving aircraft to fly in RNP airspace, and landing system architecture study with associated tradeoffs between Instrument Landing System (ILS), Microwave Landing System (MLS), and Differential Global Positioning System (DGPS) and implemented strategy assessment.

Benefits:
This program addresses the national priorities of technical leadership, safety, environmental protection, and economic health. Operational cost savings from the GPS satellite navigation program have been estimated to be in the hundreds of millions of dollars as a result of increased capacity and reduced fuel use through reduced route separation standards, instrument approaches to all runways, and optimum routing.

The FRP outlines the US Government's management practices for Federally provided navigation systems used by both military and civil sectors. The plan guides implementation of air, marine, land, and space navigation systems to ensure efficient use of resources between agencies, and protects the national interest.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
1,209	16,217	17,930

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 3c **R,E&D Plan No: 033-110**

Program Title: Surveillance

Amount: $3,000,000

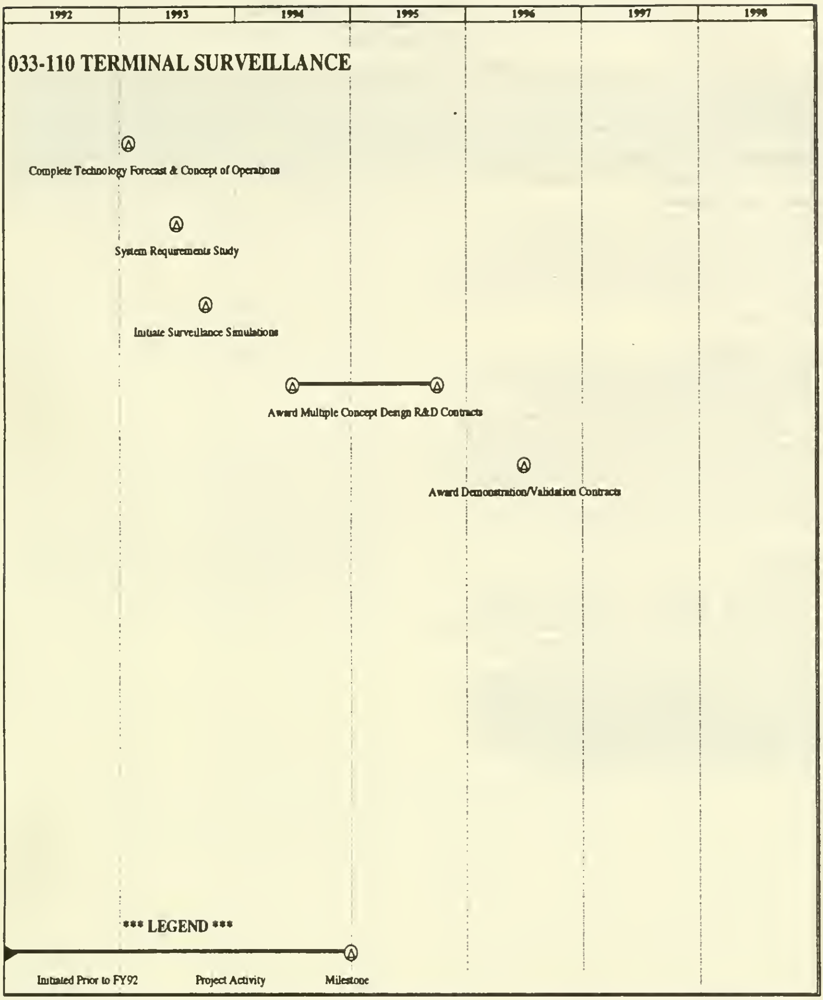
Basis for Request:
Define, develop and implement the next generation Terminal Area Surveillance System (TASS) for aircraft surveillance and detection of hazardous and non-hazardous weather. The primary and secondary surveillance radars (ASR-9) and weather sensors (e.g., LLWAS, TDWR) now being deployed will need to be replaced for obsolescence and to meet future demands for advanced capabilities in aircraft and weather detection. Emerging technology will allow the FAA to meet these demands and improve on operation performance limitations imposed by today's technology.

Program Request:
The system requirements study for assessing the benefits in safety and capacity to be gained by emerging technology will be completed in FY 1993. Results of these studies will lead to competitive contracts for concept designs during FY 1994 with expected completion in FY 1995.

Multiple contracts are planned to be awarded in FY 1996 for prototype development and testing followed by selection of a single contractor for full scale development and production of the next generation terminal area system.

Benefits:
Safety enhancements in the terminal area through new hazardous weather products and flexible surveillance coverage are possible with TASS. System delays and separation criteria will be reduced through improved surveillance and weather detection. A recently completed cost-benefit analysis indicates that the TASS program has a benefit-cost ratio likely to fall between 2 and 4. Moreover, U.S. leadership in development of an integrated system of terminal sensors will provide significant economic benefits to industry because of strong domestic and international interest in integrated aircraft and weather surveillance systems.

Specifically, substantial benefits will be derived by support for current U.S. international technical leadership in civil-use phased-array radar and microwave microelectronics module technologies. Commercial applications of these advanced ATC systems will benefit from R&D efforts to significantly reduce manufacturing costs for civil applications. The commercial market for these technologies is estimated to be well over $1 billion annually.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
0	2,859	3,000

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 4a

R,E&D Plan No: 041-110
041-120
042-110

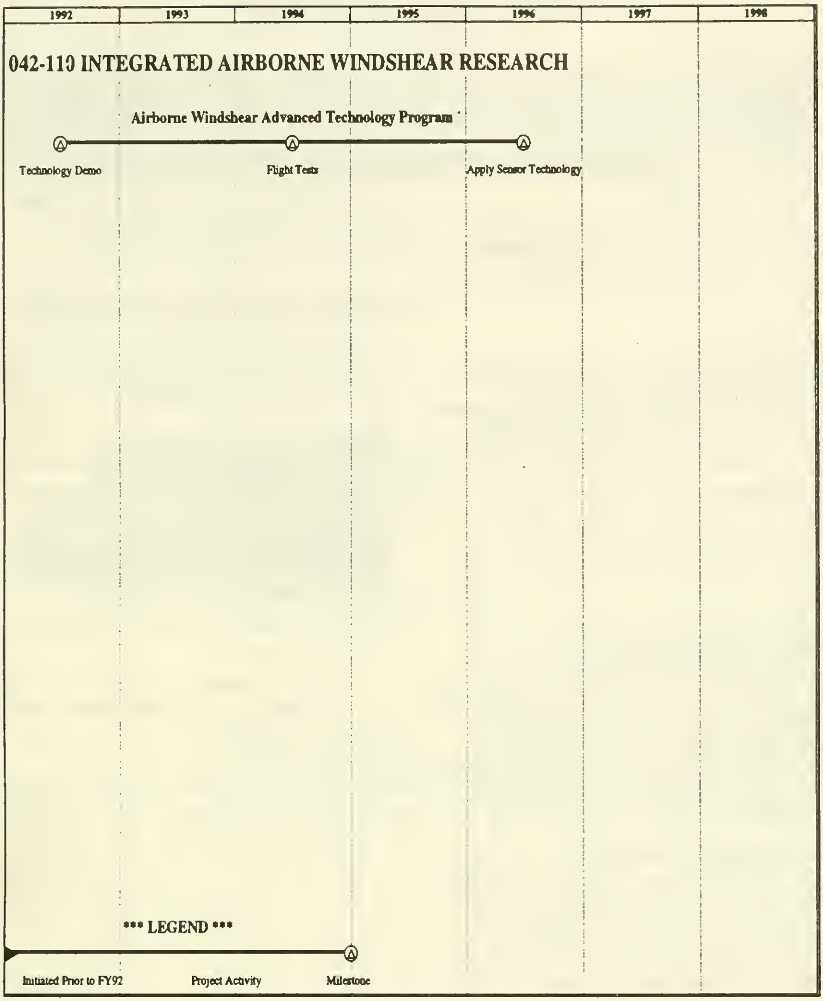
Program Title: Weather Program

Amount: $1,908,000

Basis for Request:
Develop look-ahead sensors for detection of hazardous windshears occurring during the approach phase of flight. Windshear has been the primary cause of 14 accidents in a 10-year period resulting in over 400 fatalities.

Program Request:
Integrated Airborne Windshear Research
In FY 1994, flight tests of the combined sensors (radar, LIDAR, infrared) will investigate other clear air phenomena hazardous to civil air transport aircraft, such as mountain rotors. Airborne sensor output will be integrated with that of ground-based systems and utilized by the flight crew and air traffic controllers to avoid hazardous weather conditions.

Benefits:
This program addresses the national priority of safety. Advanced sensor development allows for identification of hazardous weather conditions such as windshear, clear air turbulence and mountain rotors. These weather conditions are responsible for numerous injuries. This program increases the safety of operations in the National Airspace System by allowing for the identification and avoidance of these hazardous weather conditions.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
4,361	6,116	1,908

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 5a	**R,E&D Plan No: 051-110 051-120 051-130**
Program Title: Airport Technology	
Amount: $7,509,000	Base: $7,081,000 Investment: $428,000

Basis for Request:
Develop guidelines, standards, and facilities for the safe and efficient operation of the Nation's airports. This program relates to airport planning and design technology, airport pavement technology, and airport safety technology.

Program Request:

Airport Planning and Design Technology

Airside Technology - In FY 1994, studies will continue on airport planning and designing to accommodate new, unique aircraft configurations, such as larger wingspans and the high speed civil transport (HSCT).

Landside Technology - In FY 1994, studies will continue on terminal design requirements and standards for ground access to airports and development of planning and performance tools for efficient authorization and cost decisions on distribution of AIP funds.

Airport Pavement Technology

In FY 1994, criteria and methods for design, evaluation, performance and serviceability of pavements at airports in the cold regions will be completed. Comprehensive evaluation of the previously instrumented runway and taxiway system at the new Denver airport will be initiated. Work will continue on National Pavement Test Facility to make it operational by FY 1996.

Airport Safety Technology

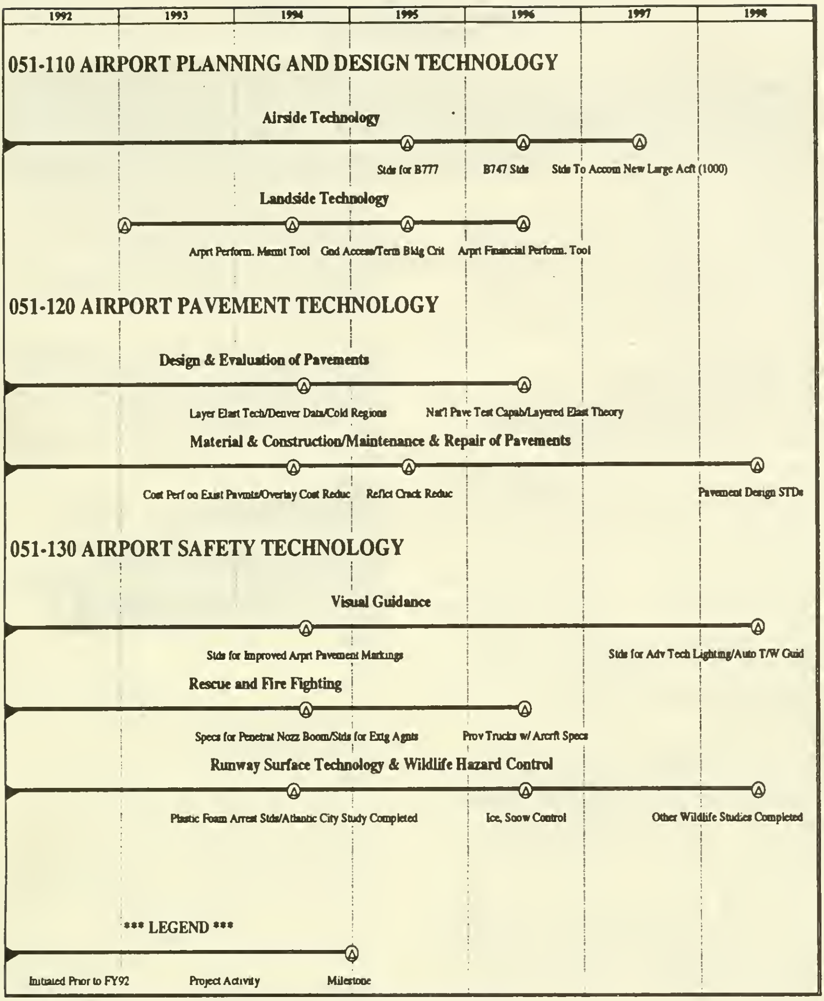
Visual Guidance - In FY 1994, standards for improved airport pavement markings will be completed. Also, work on standards for advanced technology lighting sources and an automated taxiway guidance system will continue. Airport lighting and markings field demonstrations will continue.

Rescue and Firefighting (RFF) - In FY 1994, specifications for a penetrating nozzle boom will be developed. Standards for new fire extinguishing agents to replace Halon 1211 will be developed. In addition, work will be initiated to provide fire trucks with information for efficient rescue operations following a crash.

Runway Surface Technology - In FY 1994, the standards for installation of a plastic foam arrestor system will be completed. Work on ice and snow control will continue.

Wildlife - In FY 1994, the regional study at Atlantic City International Airport will be completed. A second regional study and studies on harassment techniques will continue. Work on standards for landfill locations will be completed.

Benefits:
The new and improved standards, criteria and guidelines for the planning, design, construction, operation and maintenance of airports, heliports and vertiports will provide the means to ensure efficient application of federal aid for airport development and continued and enhanced airport operation from a capacity and safety standpoint.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
6,038	6,619	7,509

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 6a **R,E&D Plan No: 061-110**

Program Title: Aircraft Systems Fire Safety

Amount: $5,697,000

Basis for Request:
Minimize fire-related injuries and increase survival rates for aircraft occupants during in-flight and postcrash fires. Improve ability to detect and suppress aircraft fires. Develop design methods to contain fires. Establish fire tests and criteria for fire resistance materials.

Program Request:
Materials Fire Safety
Testing of new concepts and materials for hardening the fuselage against penetration by an external fuel fire will be completed in FY 1994.

Long-range research to develop advanced resin systems employed in interior composite constructions will be extended in FY 1994 to include use of ceramic fibers as a replacement for fiberglass and Kevlar.

Fire Management
Optimization tests of a prototype cabin water spray fire suppression system were completed in FY 1993 to reduce the weight penalty associated with the water supply. In FY 1994, airworthiness requirements and fire suppression effectiveness criteria will be developed.

Cargo compartment tests of alternate agents to Halon 1301, which is being phased out of production because of its contribution to stratospheric ozone depletion, will be conducted in FY 1994. Also, an engine nacelle simulator for replacement agent/system evaluation tests will be designed and constructed.

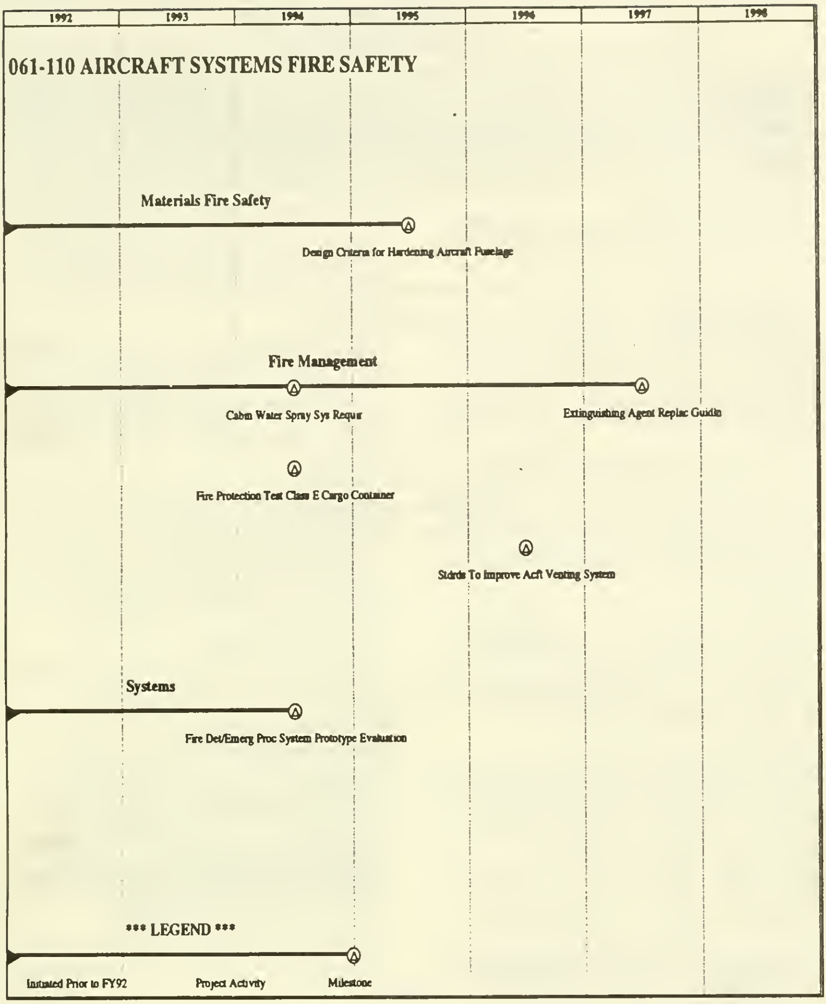
In FY 1994, fire protection tests for Class E cargo compartments (freighters) will be completed in order to establish the effectiveness of depressurization for fire control.

Systems
In FY 1994, a series of smoke control valve configurations will be tested to determine its effectiveness in venting smoke from an airplane during various in-flight fire scenarios.

In FY 1993 a prototype Aircraft Command in Emergency Situation (ACES) system, designed to provide more timely and useful decision-making information to the crew during in-flight fire emergencies, was completed. Demonstration tests of the effectiveness of the prototype ACES system in a ground-based aircraft will be conducted in FY 1994.

In FY 1994, support will continue to be given to the National Transportation Safety Board in the investigation of aircraft accidents involving fire and to agency certification efforts by sponsoring and conducting the activities of the International Working Group on Aircraft Material Fire Tests.

Benefits:
Systems and projects such as fire hardening, fire resistant materials, and onboard cabin water spray are designed to increase passenger evacuation time. Similarly, projects such as ACES, smoke venting, and oxygen systems will result in improving passenger safety against in-flight fire.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
6,239	5,456	5,697

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 6b **R,E&D Plan No: 062-110**

Program Title: Aircraft Crashworthiness/Structural Airworthiness

Amount: $4,112,000

Basis for Request:
To provide increased safety for both passengers and crew by maximizing structural integrity during flight and in the event of a crash.

Program Request:
Crashworthiness
In FY 1994, impact testing of commuter airplanes will be completed and data analyzed. In a joint FAA/NASA effort, testing of advanced composite airplane structures will continue. The testing program will include full-scale drop tests.

In FY 1994, structural response and flotation characteristics of commuter aircraft and rotorcraft will continue to be investigated through full-scale and water impact testing. Resulting data will be used to develop flotation criteria and occupant survival requirements.

Research will continue in FY 1994 on cabin safety issues such as overhead bins and advanced seat/restraint systems for both fixed and rotary wing aircraft. Investigations will continue on the effects of a crash impact on auxiliary tanks, fuel lines, and fittings.

In FY 1994, model-driven analysis of test data and refinement of computer codes will continue. The validity of the seat occupant model-transport aircraft code for modelling advanced energy-absorbing seats will be determined. Efforts to extend a structural modelling code to predict the energy absorption and response of a composite aircraft structure for a generalized impact will continue.

Airworthiness (Advanced Materials)
In FY 1994, a joint FAA/Army effort to investigate a variety of advanced composite materials test methods will continue. An FAA/NASA effort to monitor research on the advanced high-speed aircraft and identify material applications to current and future civil aircraft design and fabrication methods will be initiated. Other efforts will include update of the FAA handbook on manufacture and repair of fiber-reinforced advanced composites.

In FY 1994, a joint FAA/NASA effort on fatigue scatter in advanced materials structural designs will continue. An effort to evaluate the effects of bonded composite material repairs on damage tolerant structures will be conducted.

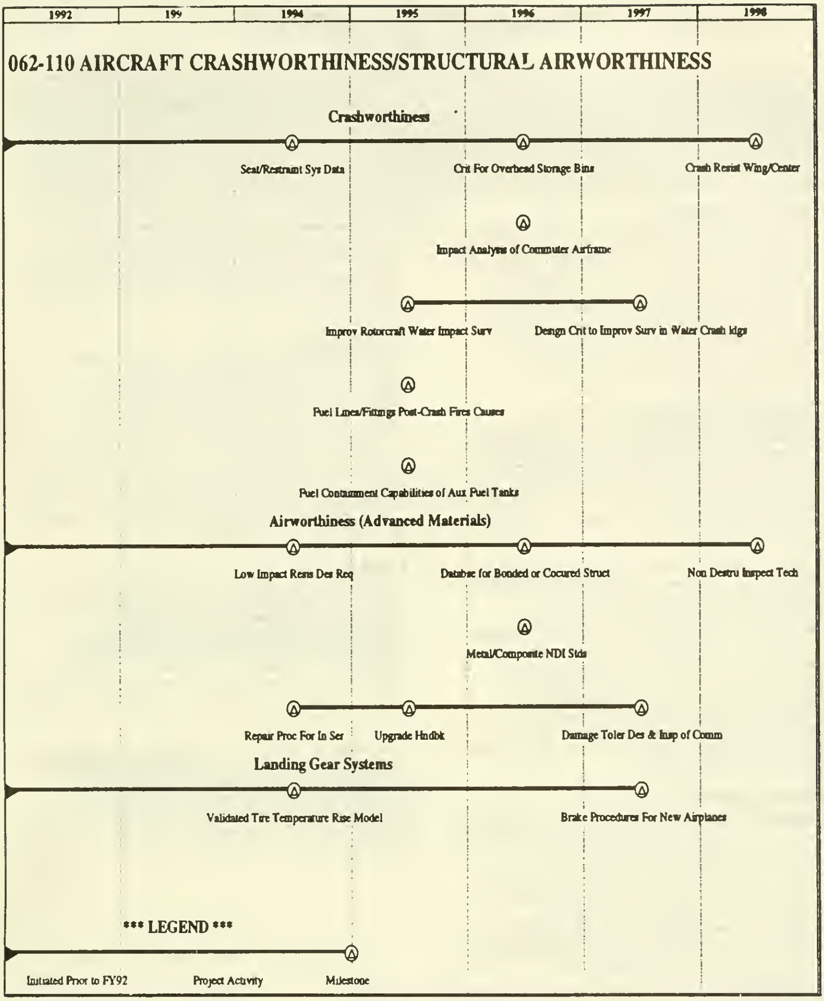
A joint FAA/Navy study of delamination effects on damage tolerance of advanced composite aircraft structures will continue in FY 1994. An investigation of environmental effects (moisture, hail, etc.) on damage tolerance, as well as their impact on the operational life of the structure will also continue.

Current studies on nondestructive inspection of advanced materials will be expanded to include the metal/composite interface. A joint FAA/Navy investigation on effects of foreign object damage (low impact) to pressurized laminate structures will be completed.

Landing Gear Systems
In FY 1994, bias- and radial-ply tire comparison tests will continue. A tire temperature-rise model will be validated. Studies will begin on safety issues related to anti-skid brake certification tests.

Benefits:
The benefits to be derived from the aircraft crashworthiness/structural airworthiness (advanced materials) research lie in the reduction of the probability of occupant injuries/fatalities by minimizing the risk of an accident and improving survivability in an accident.

062-110 AIRCRAFT CRASHWORTHINESS/STRUCTURAL AIRWORTHINESS



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
4,184	4,155	4,112

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 6c **R,E&D Plan No: 063-110**

Program Title: Propulsion and Fuel Systems

Amount: $2,784,000

Basis for Request:
Establish airworthiness criteria and related technical material to ensure the safety, reliability, and durability of powerplants and fuel systems on commercial, commuter, and general aviation aircraft. Review changes in specifications and availability of aviation fuels and perform research necessary to maintain and enhance propulsion and fuel system safety.

We plan to develop: criteria, standards, and specifications to support improvements in certification requirements; prototype hardware and advanced materials and processes; inspection and maintenance techniques; engine ingestion criteria; and light weight materials for containing engine rotor failures.

We will also investigate: in-service propulsion system failures; the impact of advanced diagnostic systems on propulsion safety; techniques for preventing uncontained turbine engine failures; techniques for the inspection, repair, and maintenance of engines; the impact of changing aviation fuels and elevated fuel temperatures on aviation safety and certification requirements; and techniques for reducing the post-crash fuel fire hazards.

Program Request:

Engine Structural Safety

In FY 1994, the work on the development of light-weight containment materials will continue and the analysis of current instances of non-containment turbine engine rotor failures will continue. The development of techniques and prototype hardware for predicting incipient non-containment failures and the development of a rotor failure fragmentation pattern/analytical model will continue in FY 1994.

Engine Performance Safety

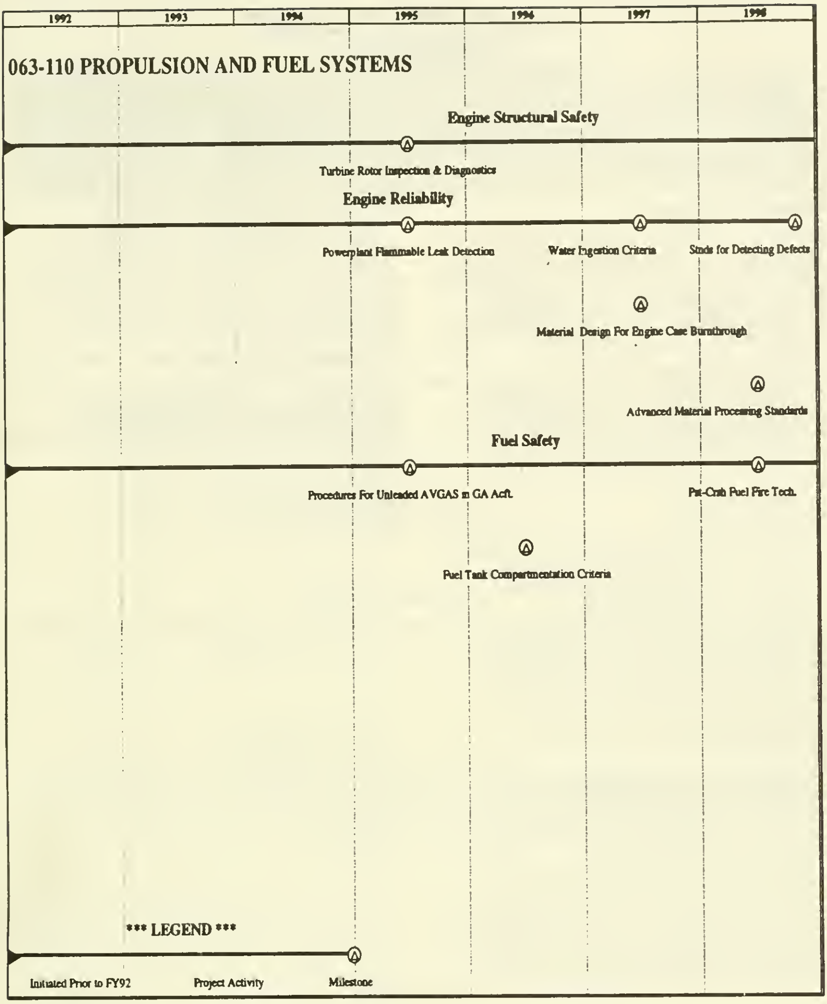
Experimental efforts to validate an engine water and hail ingestion, analytical model will continue in FY 1994. The development and evaluation of advanced fire, overheat, and flammable mixture sensors for powerplant installations will continue in FY 1994. The effects of elevated fuel temperatures and materials, associated with the commercial high-speed transport aircraft and changing fuel specifications on aviation safety and certification requirements, will continue in FY 1994.

Fuel Safety

Evaluation of promising approaches to improve post-crash fuel safety, including developing the technologies and prototype hardware which will prevent the ignition and the spraying or free flowing of significant quantities of fuel after a crash, will be further expanded in FY 1994 to determine the compatibility of modified fuels with aircraft fuel systems. The unleaded aviation gasoline test program will continue through FY 1994.

Benefits:
Solutions to improve propulsion and fuel system safety and reliability will provide a framework for future technology standards in support of engine and aircraft certification. Improved guidance material, prototype hardware designs and advanced materials will be made available to deal with in-service problems.

Propulsion and fuel systems research and development will reduce the number of accidents/incidents, contribute significantly to improving flight safety, and provide the travelling public with the highest degree of safety within the current state-of-the-art.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
3,218	2,525	2,784

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 6d **R,E&D Plan No: 064-110**

Program Title: Flight Safety/Atmospheric Hazards Research

Amount: $3,226,000

Basis for Request:
To improve flight safety through: (1) better measures for dealing with icing, lightning, and high-intensity radiated fields (HIRF); (2) advances in the next generation aircraft in such areas as digital flight control systems; and (3) enhancements to flying qualities, operations, and pilot workload.

The aircraft flight safety and atmospheric hazards research addresses new technologies, aircraft design, and operational issues that will provide technical data, procedures, and guidelines for inputs to advisories, rulemaking, and standards.

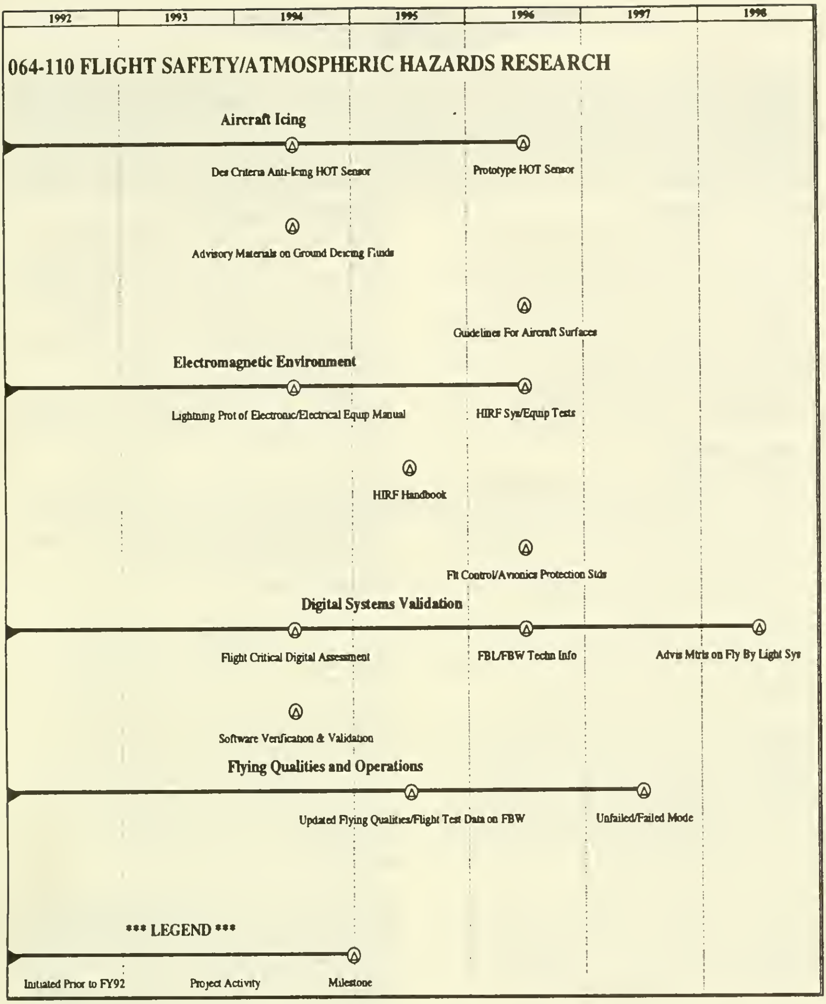
Program Request:
Aircraft Icing
In FY 1994, development of a prototype device for determining the hold-over-time of anti-icing fluids will be initiated. Continuing efforts will include: (1) development of recommended design criteria for validation of analytical technologies, computer codes, and simulation methodologies; (2) pilot advisory materials on advanced deicing fluids; and (3) validation of the time-of-effectiveness of anti-icing fluids for various freezing precipitation conditions.

Electromagnetic Environment
During FY 1994, there will be: a demonstration and validation of HIRF modeling; techniques to verify the transition from full scale electromagnetic testing to modeling/analysis techniques will continue; development of a standard for determining the zoning for lightning will be initiated; and the User Manual for the Protection of Electrical Electronic Equipment against the Indirect Effects of Lightning will be published.

Digital Systems Validation
In FY 1994, the FAA digital systems validation program and NASA flight critical systems assessment for highly reliable fly-by-light/power-by-wire (FBL/PBW) technology will continue with development and test of FBL/PBW systems, equipments, and devices.

Flying Qualities and Operations
In FY 1994, emphasis will be placed on: updated flight-test data and analysis of Fly-By-Wire, computer-based automated flight control systems and equipment that improve certification and safety assessment techniques; and type-certification and operational certification issues for unfailed/failed-mode flight operations.

Benefits:
This program will provide safer aircraft operation during flight by concentration on areas such as aircraft icing, electromagnetic environment, digital flight control system technology assessment, flying qualities, operations, and pilot workload.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
5,870	2,754	3,226

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 6e **R,E&D Plan No: 065-110**

Program Title: Aging Aircraft

Amount: $22,655,000

Basis for Request:
Better understanding of the effects of aging on aircraft structures and systems and to translate that information into more stringent and effective design, inspection, and maintenance requirements. Develop technologies to predict, detect, and prevent failures on in-service aircraft due to aging related structural degradation and automated systems for aviation inspectors to enforce standards for aircraft inspection and maintenance.

Program Request:

Structural Design
Activities include the development of analytical methods and verification tests to analyze design features that are fatigue sensitive. Structural design tasks that are to be completed in FY 1994 will include the development of an analytical model to predict onset of wide-spread fatigue damage (multiple-site damage). This effort will be in conjunction with the compilation of an airframe structural design handbook detailing damage tolerant design features to prevent or postpone multiple-site damage.

Collection of flight loads data of transport and commuter aircraft will be continued during FY 1994. Twelve transport airplane models and three commuter types were instrumented with flight load data recorders to establish a flight usage data base that can be used by manufacturers to refine calculations of fatigue crack growth and inspection intervals.

Assessments of the effects of aging on commuter airframe structures will be initiated, so that a methodology for establishing a basis for supplemental inspection of commuter airplane structures can be developed.

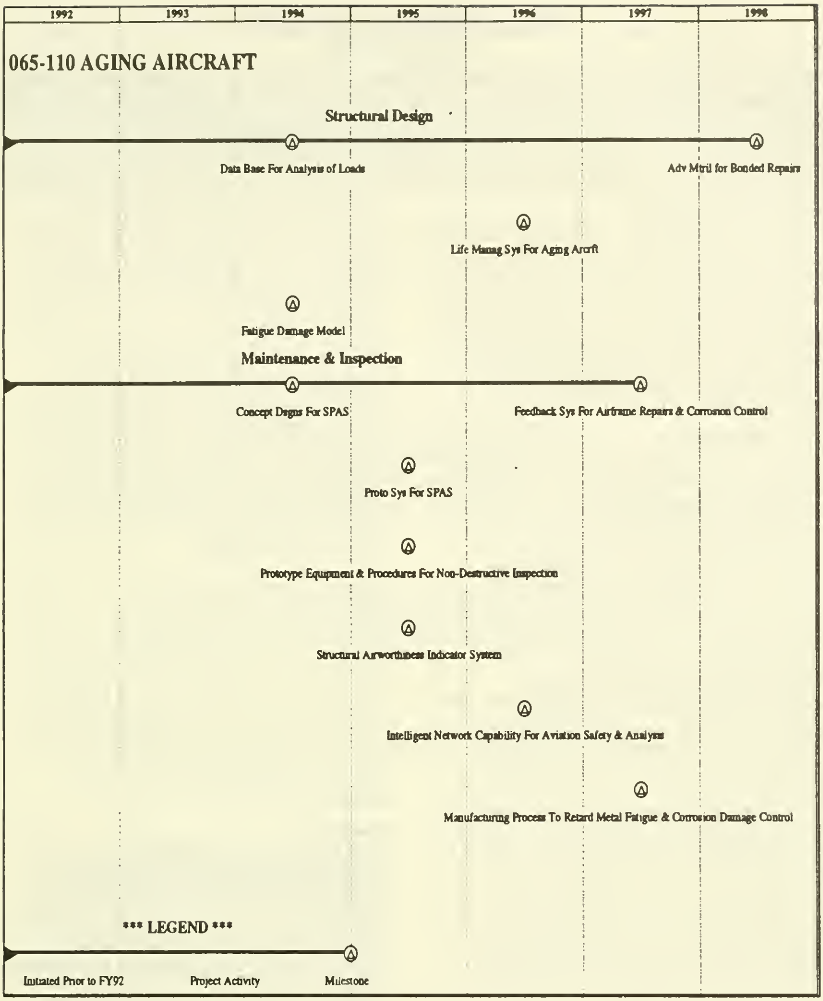
Additional tasks will include development of damage tolerance analysis capability appropriate to engine parts; test protocols for repair of metallic airframes using composite patches; and investigation of active and passive schemes to instrument aircraft structures to provide diagnostic information.

Maintenance/Inspection
Research will focus on development of large area scanning systems and other advanced nondestructive inspection (NDI) methods to detect fatigue cracks, disbonds and weak bonds, and corrosion in airplane structures. The first system will be demonstrated and validated in FY 1994 and will result in higher reliability of inspection and reduction in inspection time. Concurrently, robotic devices will be developed to automate NDI and analysis procedures and for archiving such data, thus minimizing human errors.

Additional NDI related tasks will include numerous NDI demonstrations and validations which allow measurement of NDI system performance under field conditions and development of minimum NDI equipment and proficiency requirements at certified aircraft repair stations.

Continued development of the Safety Performance Analysis System (SPAS), which is an automated system for retrieval and analysis of safety critical related data from disparate data bases, will provide the FAA aviation safety inspector with the means to focus attention on air carriers/airplanes that are of greatest concern. Development of corrosion control training and compilation of a design/maintenance handbook will also be completed. The measurement of reliability associated with field inspection and typically used NDI methods will be quantified.

Benefits:
This program will enhance aviation safety through improved understanding of aircraft structural performance and flight standards data. Improvements in structural performance through identification of structural failure mechanisms will ensure airworthiness of the existing fleet and new generation airplanes.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
14,825	20,638	22,655

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 6f **R,E&D Plan No: 066-110**

Program Title: Aircraft Catastrophic Failure Prevention Research

Amount: $2,701,000

Basis for Request:
Commercial transport aircraft accidents can be devastating and deadly. This program responds to our need to reduce the number of catastrophic aircraft accidents which results from turbine engine, structural, and flight systems cascade failures. Legislation (Public Law 101-508) requires the FAA to establish and direct a research effort to prevent aircraft system failures which could result in a catastrophic consequence.

Program Request:
During FY 1993 the program research was initiated to develop technologies and methods to assess the risk and prevent defects, flaws, design errors, and failures in the three major technical areas as described below. An integrated Aircraft Catastrophic Failure Prevention Research program plan was developed. Centers of Excellence were established as focal points for this research and to disseminate results. Preliminary risk assessment studies were completed.

Turbine Engine Failure Hazards
The failure of turbine powerplants and auxiliary power units rotating components can result in the release of high energy fragments that are a serious hazard to flight critical systems and occupants. Service experience has shown that this hazard can have a catastrophic consequence.

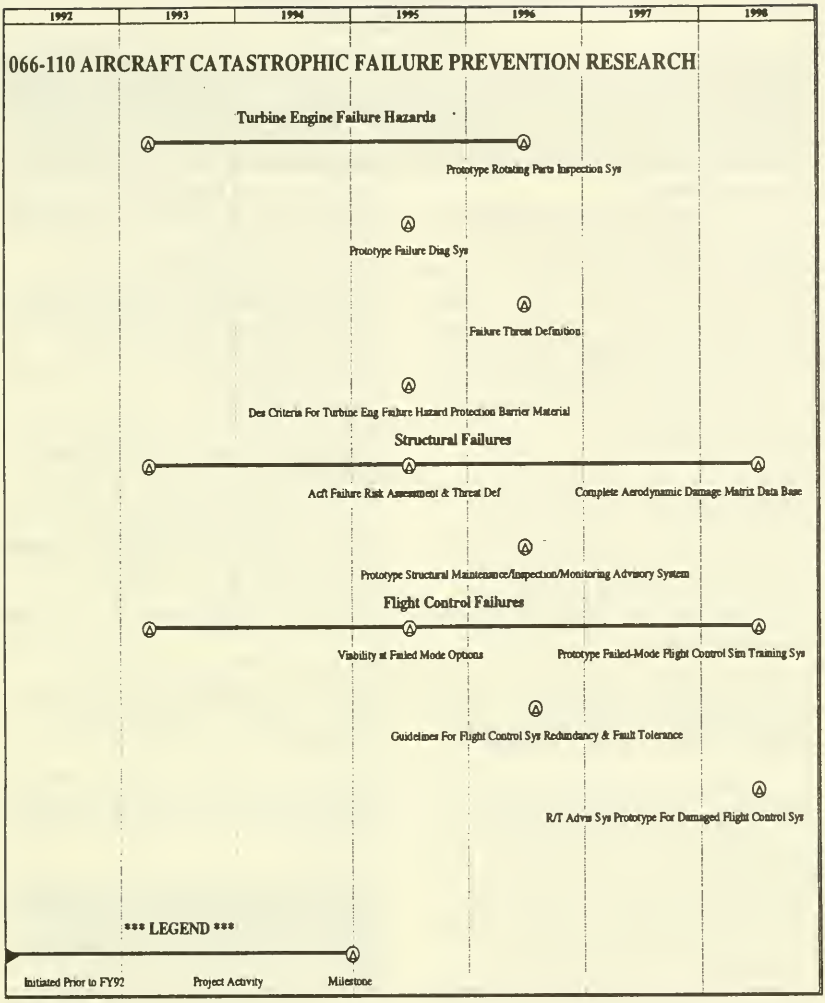
In FY 1994, a failure threat definition study will be initiated. The program framework for the development of lightweight material concepts as barriers from the fragment hazards was established in FY 1993 and will continue into FY 1994. Similarly, advanced turbine engine diagnostics system design applying artificial intelligence and nondestructive inspection techniques to improve the frequency and reliability of predicting rotor structural failures, will continue with prototype hardware demonstrations in FY 1995.

Structural Failures
In FY 1994, research will continue towards the development of independent capabilities to do analyses of the potential risk of catastrophic structural failures associated with production and future aircraft. An effort will be undertaken to develop a vulnerability assessment of narrow-bodied jet transport airplanes. All types of threats will be included in this analysis.

Also in FY 1994, efforts will be undertaken to evaluate the stature of existing technology, including non-destructive inspection and fiber optics (smart skins) for their application to next generation aircraft design. Interagency agreements and Memoranda of Agreement will be established with appropriate DOD and NASA organizations, also Memoranda of Understanding with foreign governments will be formalized to ensure assessments of all types of commercial aircraft.

Flight Control Failures
Fatal airliner accidents have revealed aircraft flight control under certain scenarios to be a particularly difficult piloting task for aircrews. In FY 1994, flight system redundancy and fault tolerance efforts will be initiated and research will continue that will lead to the development of guidelines and the assessment of the viability of failed-mode control options (such as reconfigured and substitute flight controls) for emergency conditions.

Benefits:
This program will improve the reliability, durability, and failure prediction of onboard systems whose failure could produce a catastrophic consequence. It will also provide the means to prevent onboard problems from resulting in tragic consequences. Failure prevention research will reduce the risk of catastrophic accidents, minimize hull damage, and reduce serious injuries and fatalities.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
0	837	2,701

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 7a **R,E&D Plan No: 071-110**

Program Title: Explosives and Weapons Detection

Amount: $22,829,000

Basis for Request:
The need for accurate and effective explosives/weapons detection continues with increasing importance as more sophisticated terrorist threats develop. This project seeks to improve existing explosives/weapons capabilities as well as to develop new capabilities based on emerging technologies. The project will also ensure continuing airport and aircraft security by developing new explosives/weapons detection systems.

Program Request:
Explosives Detection
In FY 1993, work continued on the development of two basic types of explosives detectors: one designed to collect, analyze, and identify vapors/particles from different explosives, and the other designed to use electromagnetic energy or nuclear radiation to penetrate and identify bulk explosives based on their elemental or structural composition. Both vapor and bulk explosive detectors are applicable to screening a wide variety of objects.

Prototype systems using nuclear, X-ray and electromagnetic methods to screen checked baggage continued the development cycle while development for cargo screening will be initiated in FY 1994.

In FY 1993, the following work was completed: (1) evaluations of prototype vapor portals were conducted; (2) a number of new technologies using massspectrometry, ion mobility spectroscopy, surface acoustic wave modulation, and biosensor techniques were identified and evaluated; (3) a Computerized X-ray Tomography prototype was evaluated at an airport; (4) Nuclear Resonance Absorption was demonstrated in the laboratory and a Coherent X-ray Scatter prototype was evaluated in the laboratory; and (5) X-ray Backscatter, high resolution X-ray, device detector systems and dual energy/dual view X-rays were evaluated at foreign airports.

The search for new concepts and innovative approaches from industry and academia continued to be a major priority of the program in FY 1993 as well as a systems integration approach for bulk and vapor detection devices.

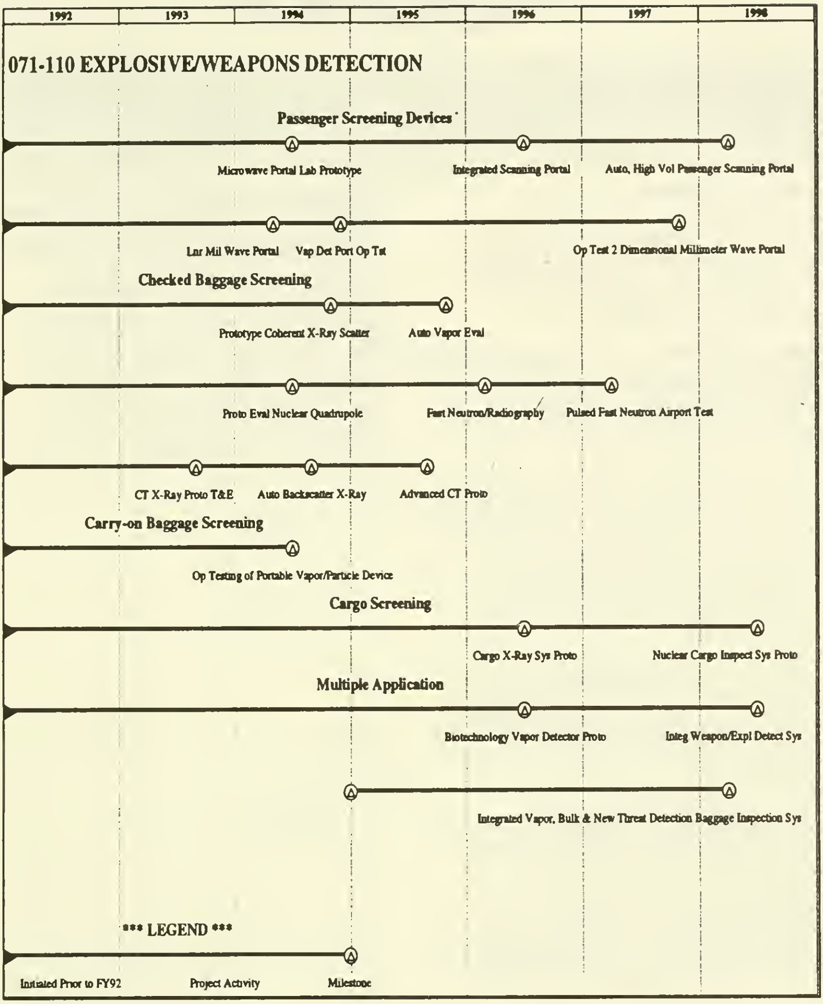
In FY 1994 operational test and evaluation of combined bulk and vapor systems will be conducted at an airport. Component development such as accelerators, detectors and targets for nuclear systems will be initiated for the long term to reduce the size, complexity and cost.

Weapons Detection
In FY 1993 commercial detection devices were evaluated and new standards were developed to assure the continuing effectiveness of these systems. Methods of enhancing the performance of the current generation of screening systems were investigated. Alternate methods to detect non-metallic handguns, as well as flammable liquids, were also being investigated. A linear array millimeter wave passenger screening portal was evaluated in an airport. A bottle screening system was evaluated in-house.

In FY 1994 laboratory evaluation of a two dimensional millimeter wave passenger screening portal system will begin. Magnetic Resonance bottle screeners will be evaluated in the laboratory.

Integration of vapor detection and millimeter wave technology for a single screening device for both weapons and explosives will be initiated by the end of FY 1994.

Benefits:
Improved explosive detection systems and devices will decrease vulnerability to terrorist acts against U.S. air carriers, airports, and the American people. Automated systems will meet increased passenger flow while minimizing cost. Continued near and long term development will impact the economic viability of the American Industry to compete in the global market.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
27,555	26,427	22,829

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 7b **R,E&D Plan No: 073-110**

Program Title: NAS Security

Amount: $2,454,000

Basis for Request:
The Enhanced Airport Security Demonstration Model at Baltimore/Washington International Airport (BWI) established a "test bed" environment for continued test and evaluation of security protection equipment and procedures against a higher level of threat.

Program Request:
The FAA has conducted a threat and risk assessment of components of the National Airspace System (NAS). This study addressed current threat levels and the assumed level of risk for certain FAA owned assets.

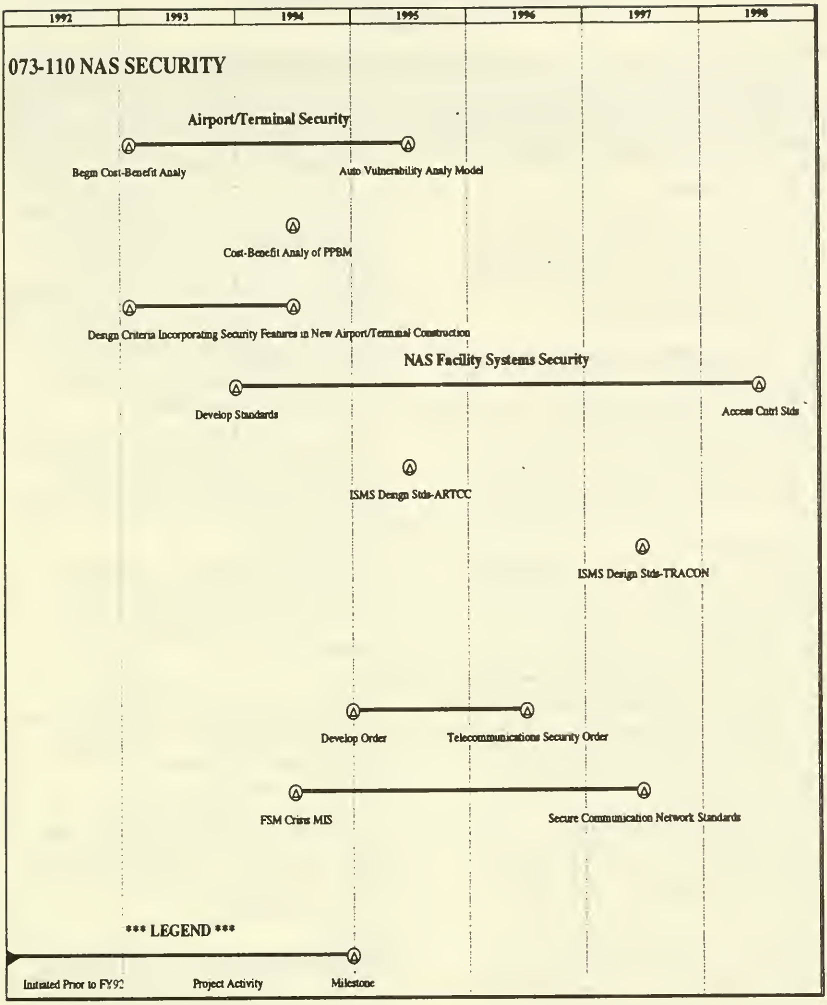
In FY 1993, protection prioritization of aviation targets were made. An enhanced system design and operational procedures were developed for security approaches to effectively counter higher levels of threat while maintaining economic viability, responsiveness, and maintenance of passenger flow. The security design was implemented.

Integration of explosive detection systems, other emerging technologies, and procedures will continue in FY 1994. In FY 1993, a report to Congress on the state of ATC data integrity was completed and access control and physical security systems were enhanced.

In FY 1994, development of an integrated security management system performance specification will be initiated. In F&E, this performance specification is expected to be implemented in FY 1994. From implementation, additional R&D is needed for further testing, evaluation, and redesign which is required to update this phase of the program. Vulnerability assessments of selective ATC systems will begin.

Development of a crisis management center system for real-time usage by the federal security professional will begin. This crisis management system will provide up-to-date information relative to various levels of risk, vulnerability, and tactics necessary during a threat situation.

Benefits:
Vulnerability of NAS components will be reduced. Applied systems integration and operational testing of technologies and procedures for airports and FAA facilities will determine which technologies and procedures can be implemented in the NAS. It will also identify those areas where further development is needed. Operational test results and man-machine conflicts will be fed back into the security system integration configuration, which includes human factors, to provide timely updates for threat-risk assessment, standards, and adaptive human factors requirements.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
4,314	4,062	2,454

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 7c **R,E&D Plan No: 076-110**

Program Title: Aviation Security Human Factors

Amount: $2,845,000

Basis for Request:
This program will improve the performance and productivity of the operators and equipment within the integrated aviation security system. The human factors activities of the Aviation Security Program will cross technology, application, and organizational boundaries.

This program carries out the mandate of the Aviation Security Improvement Act of 1990, Public Law 101-604, to "maximize human performance" within the aviation security system and "include research and development of both technological improvements and ways to enhance human performance." This Congressional directive will be translated into actions and products supported by this budget item.

Program Request:
The Public Law includes the following areas for emphasis: (1) standards for training, retraining, and continuing education requirements for airport and security personnel, coordinators; (2) methods for measurement of the performance of airport and security personnel; (3) standards for personnel selection and staffing and continued employment of airport security personnel; (4) strengthening passenger and baggage screening; (5) notification of flight and cabin crews and the public of threats; (6) ability of airline passengers and crew to reduce risks to their safety due to security/terrorist threats; (7) thwarting efforts by terrorists to enlist the unwitting assistance of aviation travelers; and (8) using human-canine teams for explosive detection in all airport areas.

In accordance with the Public Law, research is being planned and coordinated in the following areas: (1) security system passenger/baggage screener selection, training and performance evaluation of x-ray screeners; (2) adversary identification and counteraction by security personnel and aircrews; (3) FAA workforce training; and (4) human factors aspects of new and emergent explosive detection system (EDS) and NAS security technologies.

In FY 1993, this project was established, and initial emphasis was on the screening of passengers and carry-on baggage. Performance-based analyses and evaluations of screener selection criteria, training, performance monitoring, and operational procedures were started to develop requirements and criteria for automated training and performance monitoring devices. The effort is continuing towards certification of screener proficiency evaluation and reporting system (SPEARS) equipment.

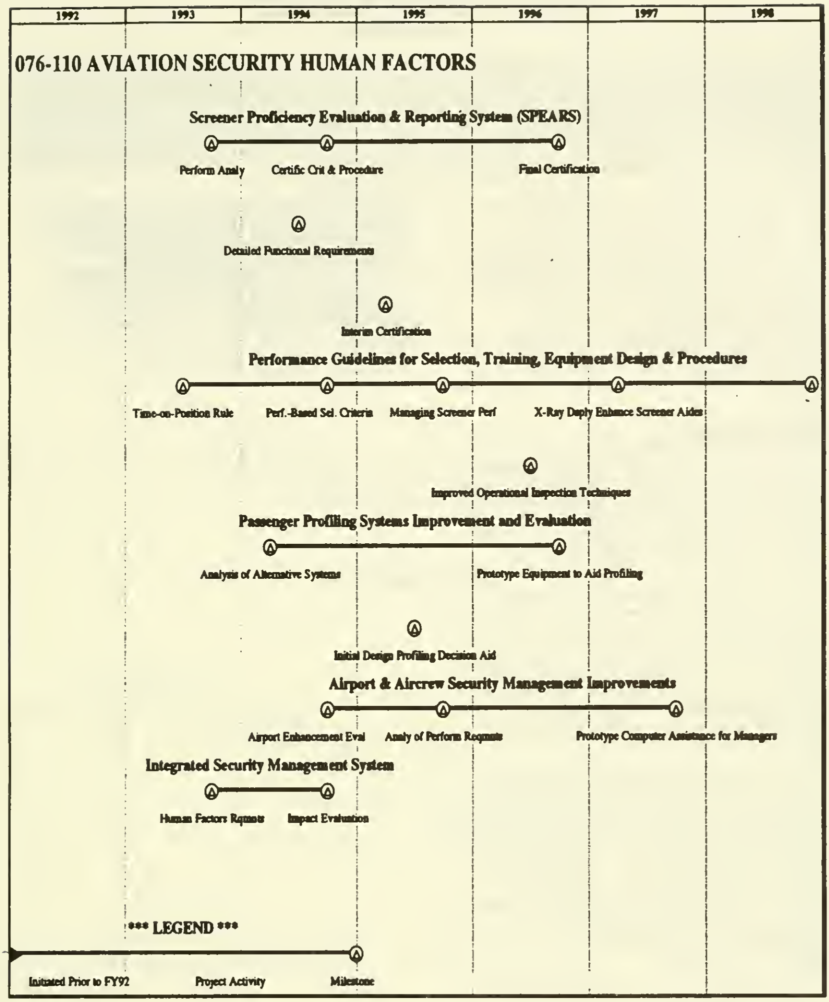
In FY 1993, the FAA Technical Center developed and implemented a program of joint human factors research. This joint, in-house human factors R&D program gives the FAA/Technical Center a new, unique and strong capability in human factors.

Beginning in FY 1994, the workforce will have appropriate human factors training designed and delivered to them; the EDS programs will have in-house human factors analyses and recommendations available to them.

In FY 1994, the work on screener abilities/traits and template for a test battery to select x-ray screeners will be used to develop suggested methods and techniques for developing selection tests for other security personnel.

In FY 1994, cost/benefit analyses will be conduced on alternative profiling methods to identify higher risk domestic passengers. Enhancements of airport security will be evaluated from human factor perspectives, emphasizing system performance.

Benefits:
Performance improvements by the humans who work within the integrated aviation security system will translate into increased safety and efficiency for all users of the National Airspace System.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
0	951	2,845

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 7d **R,E&D Plan No: 075-110**

Program Title: Aircraft Hardening

Amount: $7,802,000

Basis for Request:
The threat to aircraft survival due to in-flight detonation of a small explosive device continues to be significant. This program focuses on determining the minimum size explosive that must be detected to ensure aircraft survivability. It also assesses methods of increasing survivability through a reduction in blast effects and/or an increase in aircraft capability to resist blast through design changes to structure or systems.

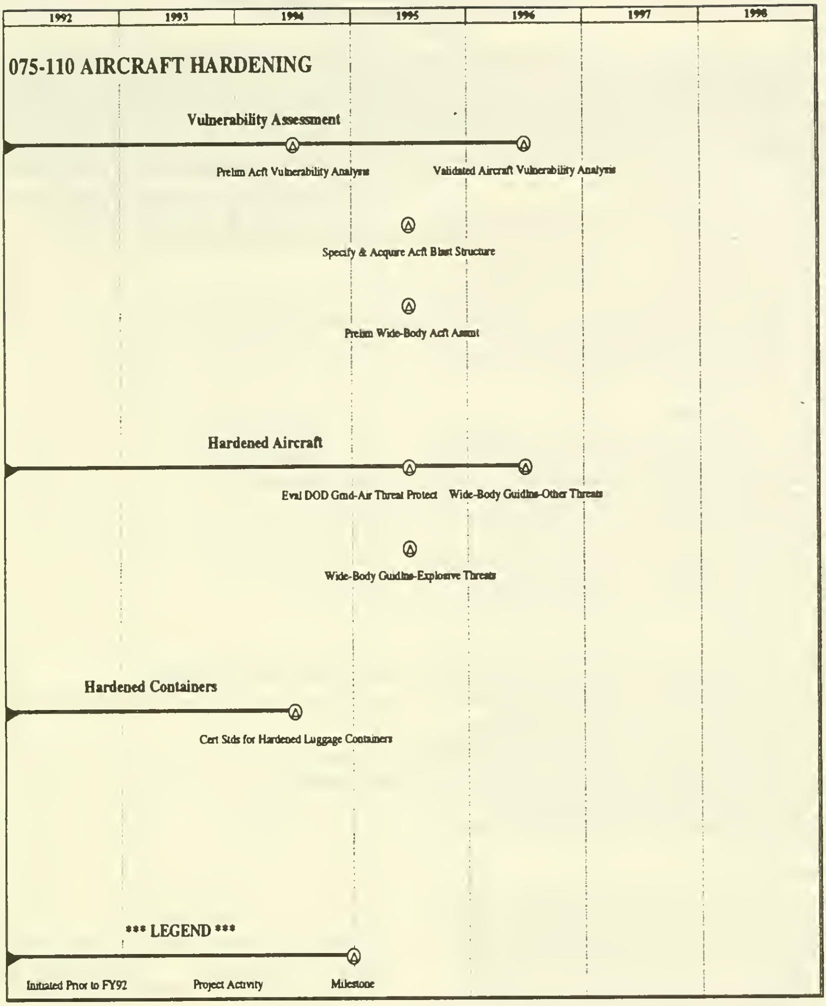
Program Request:
In FY 1993, the methodology for determining blast effects on aircraft structure and systems as well as a preliminary assessment of aircraft vulnerability were completed. A feasibility study and improved design analysis work was accomplished on modified baggage containers.

Actual explosive tests on aircraft structure and components were conducted to validate the vulnerability methodology and verify the mitigation properties of containers. Prototype containers were tested in terms of operational effectiveness as well as blast resistance. Specification criteria for a new container were established.

In FY 1994, the project will be accelerated. Certification standards for hardened luggage containers will be published. A full scale testing device will be designed. The least risk bomb location analysis will be completed. Additional analysis of wide-bodied aircraft, including an in-depth assessment by aircraft manufacturers, will further refine actual vulnerability and resistance to explosive effects.

An initial report on vulnerability of commercial aircraft to explosive effects will be generated, to be finalized in FY 1995. The analysis of future aircraft designs and the consideration of alternate threats, such as the potential impact of surface-to-air missiles on commercial aviation, will begin.

Benefits:
Improved in-flight safety resulting from increased aircraft survivability and a better definition of the minimum requirement for detection of explosives. Lives will be saved by increasing the survivability of the aircraft from difficult to detect explosive threats. In addition, cost trade-offs with detection equipment can be better analyzed and a detection requirement better defined.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
0	4,490	7,802

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 8a **R,E&D Plan No: 081-110**

Program Title: Flightdeck Human Factors

Amount: $7,430,000

Basis for Request:
Develop better understanding of human performance limits and capabilities and the root causes of human error; and use this knowledge to improve human performance in the cockpit through improved systems design, procedures, selection, training, and certification. Statistics list human error as a probable cause for approximately 65 percent of fatal civil air transport accidents and a higher proportion of general aviation accidents.

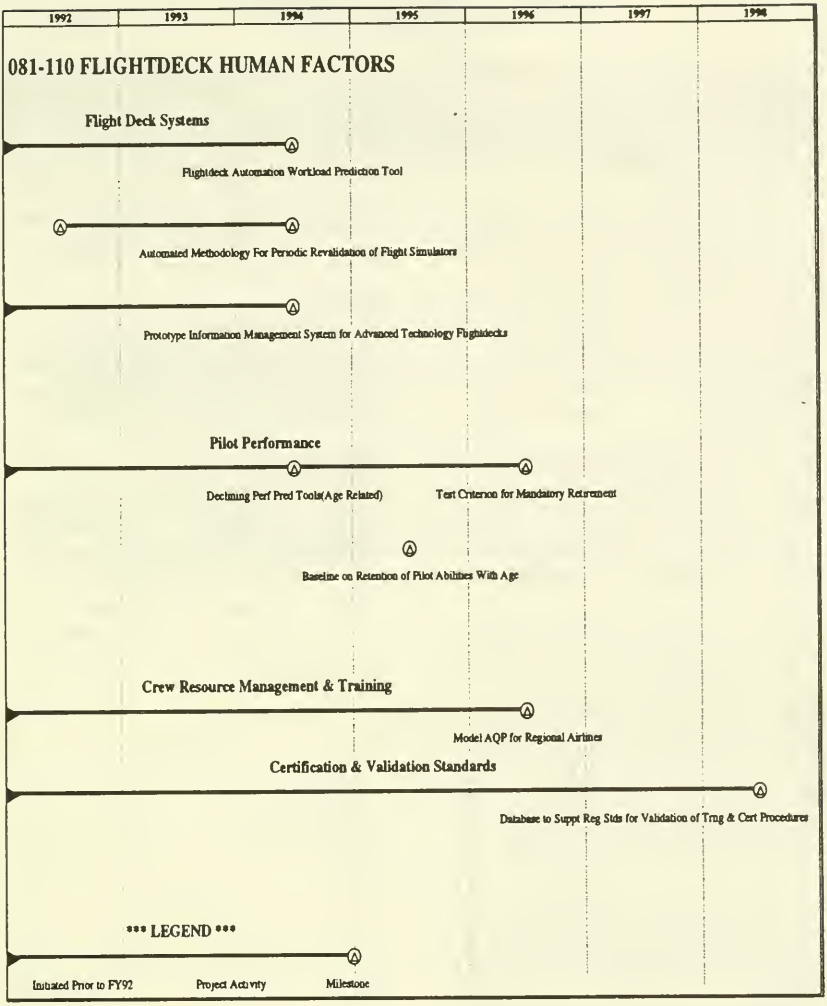
Program Request:
In FY 1994, human factors guidelines for electronic navigation charts will be completed. The effectiveness of a personal computer based flight management system training device will be documented. An automated aid to simulator revalidation will be developed. This is a software method that automates and checks the system for revalidation that everything is working correctly. This aid speeds up the process and eliminates manpower requirement.

An automation workload prediction tool and a prototype flight deck information management system will be tested in simulation. This system manages information and sorts out priorities. This system saves manpower and is more efficient. Research will continue on assessment of pilot-related factors (fatigue, sleep cycle disruptions, age, and drugs) and on increasing the effectiveness of Line Oriented Flight Training.

Benefits:
This program addresses the national priority of safety and security. Past wide body jet aircraft accidents have resulted in losses of up to 583 lives each with estimated total costs per accident as much as $700,000,000.

As the majority of aircraft accidents involve human error, a program of safety enhancement through improved flight deck human engineering, flight crew performance standards, airman selection, and initial and recurrent training will pay for itself many times over the prevention of only one accident.

New technology developments and better flight crew performance will provide further benefits in the form of increased operational efficiency.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
9,091	7,963	7,430

RESEARCH, ENGINEERING AND DEVELOPMENT (AIRPORT AND AIRWAY TRUST FUND) FISCAL YEAR 1994

Budget Item No: 8b **R,E&D Plan No:** 082-110

Program Title: Air Traffic Control Human Factors

Amount: $5,808,000

Basis for Request:
(1) Determine the effect of automation and work environment on the performance of the current and next generation of air traffic controllers; (2) develop improved methods of controller selection and training; (3) develop methods of reducing the adverse effects of controller errors; and (4) develop methods and standards for the consistent application of human factors engineering to the development and implementation of the National Airspace System (NAS).

Program Request:
In FY 1994, guidelines for display and use of electronic flight progress data for improved air traffic control system operations and reduced operational errors in Initial Sector Suite System (ISSS) and Automated En Route Air (AERA) Traffic Control environments will be completed and is expected to be initially applied in FY 1996.

Other work includes the completion of a study of the physiological impacts of new (ISSS, Voice Switching and Control System) environments (i.e.: color vision requirements and glasses) on the controller and the initiation of guidelines for the selection of 3-D versus 2-D displays in the future automated environment based on cost and performance tradeoff analysis.

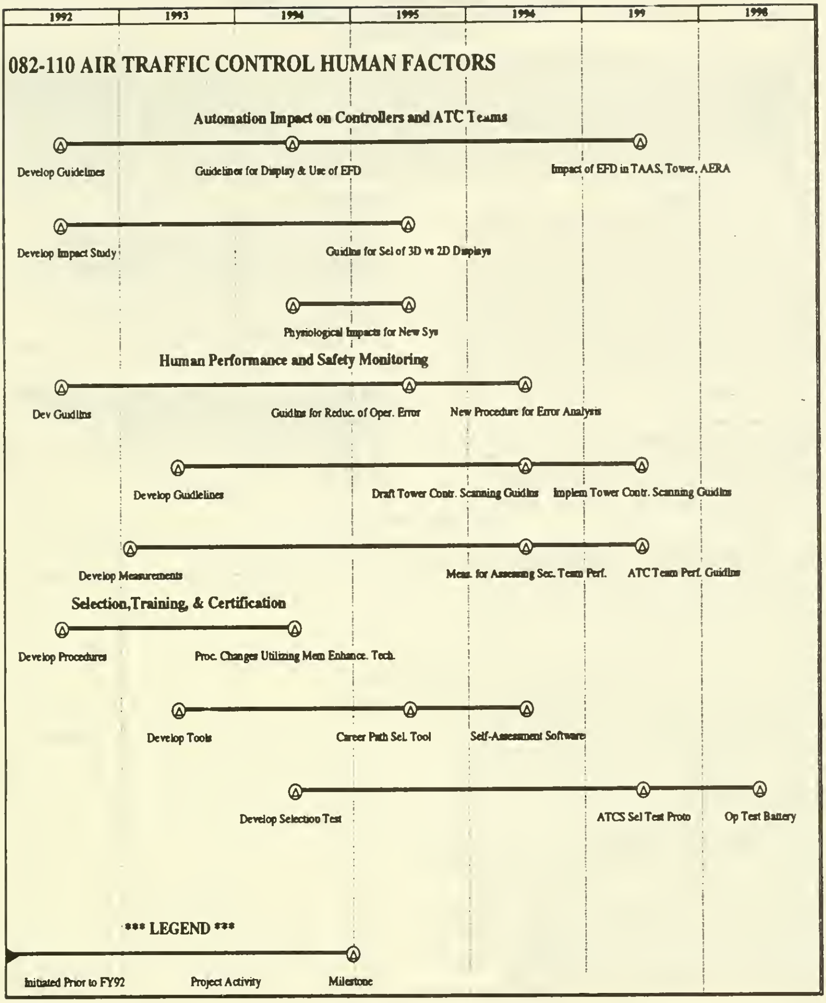
Guidelines will be published for task and procedure design to minimize operational errors in automated air traffic control (ATC) systems.

Also in FY 1994, the development of a handbook and checklist for use by controller validation teams to reevaluate new ATC systems/subsystems will be started (expected completion in FY 1996). Recommendations will be published, in FY 1994, for procedural changes utilizing memory enhancement techniques in the current operational environment.

Initiate a project to develop an interactive self-assessment software package to help ATC applicants self screen for ATC job suitability (expected completion in FY 1996). Complete final phase validation of the air traffic control specialist pretraining screen and start the design specification for the automated personnel selection test battery for future automated systems.

Benefits:
This program addresses the national priorities of Economic Health and of Safety and Security. Efficiency of operations for users of the NAS will be improved by assuring the advanced technologies are effectively utilized to support the controllers' role.

Proper attention to human factors in system design and operations, improved controller selection and training methods, and monitoring of performance trends will result in lower personnel and training costs. System safety will be enhanced by a reduction in opportunities for operational errors and a more effective controller work force.



FUNDING SUMMARY ($000)

FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
6,037	5,933	5,808

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 8c **R,E&D Plan No: 083-110**

Program Title: Airway Facilities Maintenance Human Factors

Amount: $3,459,000

Basis for Request:
To ensure that Remote Maintenance Monitoring and Maintenance Automation system procedures and equipment will properly support the role of the maintenance technician and minimize human errors, and that selection and training methods will maximize work force productivity. The trend over the past five years has been an increasing number of more complex systems to be maintained by fewer technicians, many of them approaching retirement age.

Program Request:
In FY 1994, Airway Facilities (AF) Maintenance Human Factors will continue to concentrate in three broad areas: manpower, personnel and training; maintenance automation; and human performance.

Manpower, Personnel, and Training
The job task analysis (JTA) for the new AF maintenance positions will be completed and position descriptions will be provided for use in defining training requirements.

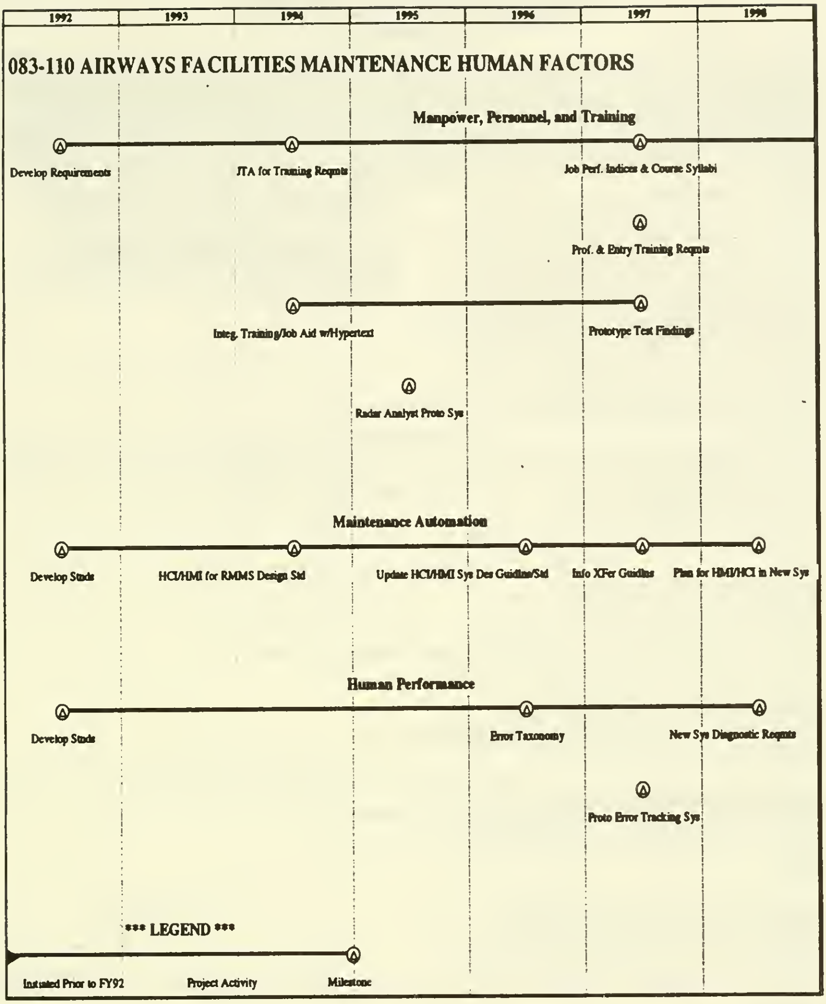
Development of a prototype expert system to be used as a job-aid for the radar analyst position will begin in FY 1994. This protoype will also include a training system and hypertext documentation. The prototype will be used to develop requirements for a system that can be procured by AF for radar analysts.

Maintenance Automation Area
This effort is required to complete and publish the design standards for human computer interface for the remote maintenance monitoring system. This standard will be updated in FY 1996 and will be the basis for the development of guidelines for streamlining information transfer and communications between AF personnel and the new systems to be completed in FY 1998.

AF Human Performance Area
An error taxonomy of AF maintenance errors (expected completion in FY 1996) and the development of a prototype error tracking system (expected completion in FY 1997) will be initiated.

Benefits:
This program primarily addresses the national priority of Economic Health. Significant cost savings will result from a more productive work force when selection and training criteria are revised to match technician capabilities with the evolving new systems, and good human engineering minimizes effects of human limitations in adverse environments.

Benefits will accrue to users through more efficient operations and a high level of service continuity. A dependable system also supports the national priority of Safety and Security.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
1,913	3,455	3,459

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 8d **R,E&D Plan No: 084-110**

Program Title: Flightdeck/ATC System Integration

Amount: $4,342,000

Basis for Request:
We need to decrease the frequency of flight deck/air traffic control (ATC) communications errors, ensure compatibility of new generations of aircraft with the evolving automated National Airspace System (NAS) and determine appropriate allocation of functions between the flight deck and ATC. A total system approach will use transport aircraft simulators, linked to a realistic ATC simulation, to research and refine proposed technologies and procedures prior to operational implementation.

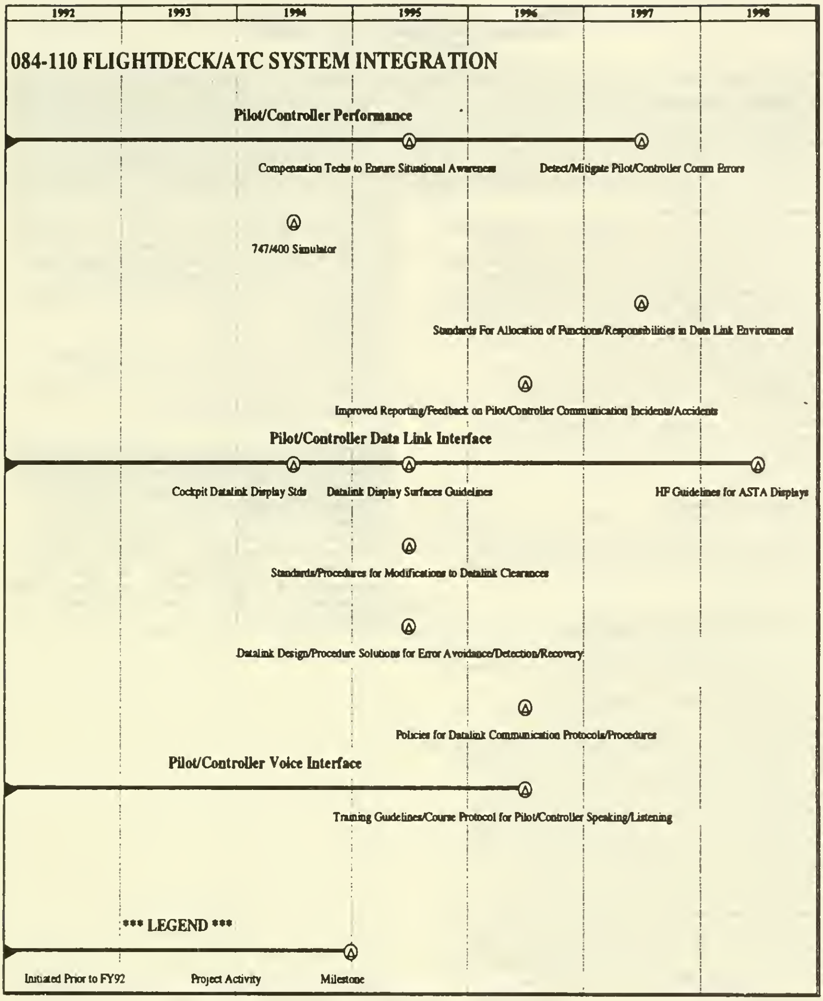
Program Request:
In FY 1994, the Flightdeck/ATC System Integration program will continue to concentrate in three areas: Pilot/Controller Performance; Pilot/Controller Data Interface; and, Pilot/Controller Voice Interface.

Pilot/Controller Performance
This area will provide for a joint purchase FAA/NASA modern glass (747/700) cockpit transport aircraft simulator to determine the human factors impact of new technologies. Ongoing efforts will provide for: party line compensation techniques, procedures, and concepts to ensure flight crews have an adequate level of situational awareness in a data link environment in FY 1995.

Pilot/Controller Data Interface
This area will provide standards for display content, format, menu design, message displacement, and location and control of data link functions in FY 1994.

Pilot/Controller Voice Interface
This area will provide for ongoing research for training guidelines and course protocol for both pilot and controller aimed at improving operational speaking and listening by FY 1996.

Benefits:
This program primarily addresses the national priority of Safety and Security. By identifying and resolving unanticipated system interactions prior to operational implementation of new technologies and services, design induced human errors will be reduced. Further, properly matching NAS and aircraft capabilities and procedures will result in more efficient use of both aircraft and ATC resources, thus also supporting the national priority of Economic Health.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
0	3,868	4,342

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 8e **R,E&D Plan No: 085-110**

Program Title: Aircraft Maintenance Human Factors

Amount: $1,984,000

Basis for Request:
Human factors for aircraft maintenance is focused on error management and influencing the private sector through both information and validated "best practice" guidelines. It has been over 20 years since a descriptive baseline of the training of Aviation Maintenance Technicians (AMTs), their equipment, workplace environment, work description, and information and communication problems has been obtained. Increasing aircraft automation, changing materials and improved electronics have changed the nature of AMT requirements and training.

Program Request:
In FY 1994, Aircraft Maintenance Human Factors will continue to concentrate in two broad areas of maintenance and inspection: performance and training; and systems.

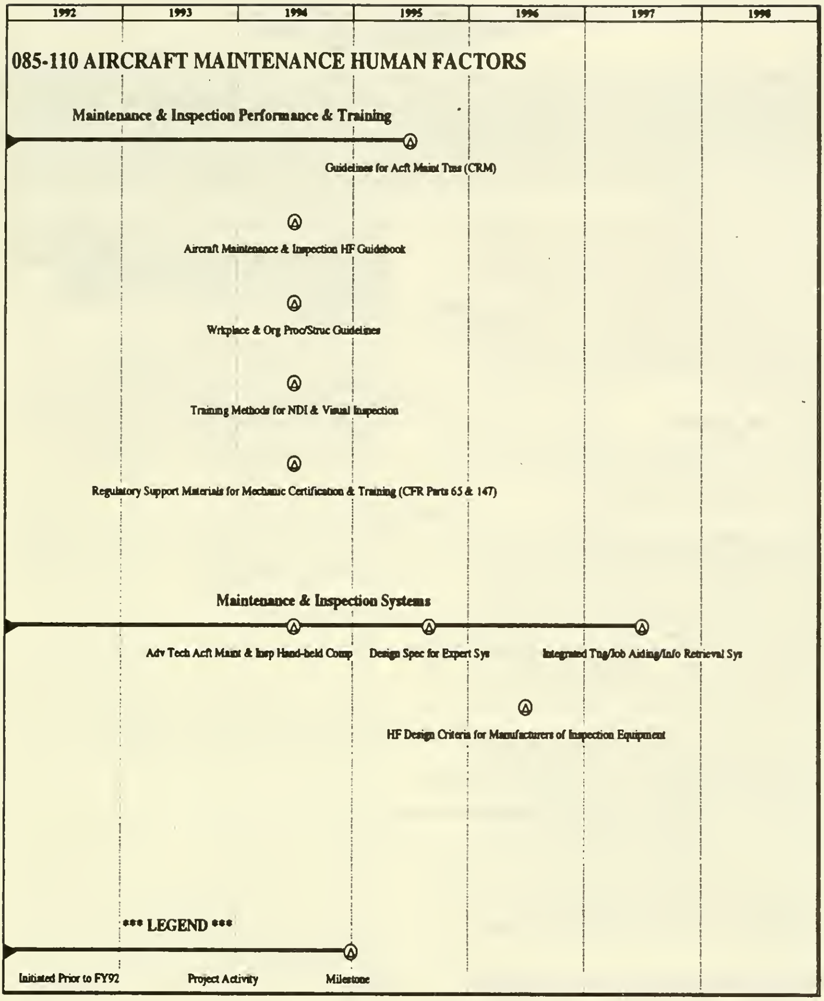
Performance and Training
This area will provide for:
(1) aircraft maintenance and inspection of human factors guidelines in terms of information on the impact of environment and stress on human performance; (2) guidelines for workplace environment and organizational procedures and structure (compensate for "occupational safety and health administration" vacuum, maintenance and inspection platforms, lighting, noise, handling of hazardous materials); (3) training methods for non-destructive inspection and visual inspection to reduce flaw detection errors; (4) regulatory support materials for Aviation Maintenance Technician certification and training (CFR Part 65, Certification: Airmen Other Than Flight Crew Members; and (5) Part 147, Curriculum Requirements for Aircraft Mechanic Training Institutions).

Systems
This area will provide a hand-held computer and specialized software in FY 1994 for advanced technology aircraft maintenance and inspection and for support of training and information management needs of FAA aviation safety inspectors.

Ongoing efforts could produce: (1) the final design specifications in FY 1995 for maintenance and inspection expert system initial and recurrent training tool for industry application; and (2) an integrated training/job aiding information retrieval system in FY 1997.

These efforts are part of an agency-wide, NASA and industry effort to provide improved safety in maintenance and inspection of aircraft.

Benefits:
Reduction in accidents and incidents in air carrier operations attributable to maintenance and inspection of human factors errors through an integrated systems approach to maintenance and inspection. Enhanced training methods, job performance aids, improved human engineering of equipment, as well as improved FAA regulations, and improved performance of FAA aviation safety inspectors.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
1,475	1,412	1,984

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 8f **R,E&D Plan No: 086-110**

Program Title: Aeromedical Research

Amount: $4,233,000

Basis for Request:
This project assesses which types of persons are physiologically and clinically adaptable to the civilian flight environment and what types of injury and death occur in this environment. This information is used to evaluate, develop, and recommend protective equipment and procedures and to generate specialized guidance to regulatory and medical certification staff.

Program Request:
The Aeromedical program focuses on two principal areas of research: protection and survival (certification and standards); and clinical physiological research.

Protection and Survival
Major protection and survival products projected for FY 1994 include: (1) scientific basis for aircraft certification standards and design techniques to reduce head injury in aircraft crashes and (2) certification standards for new crew and passenger protective breathing gear, new infant/small child flotation devices, and post-water ditching evacuation procedures.

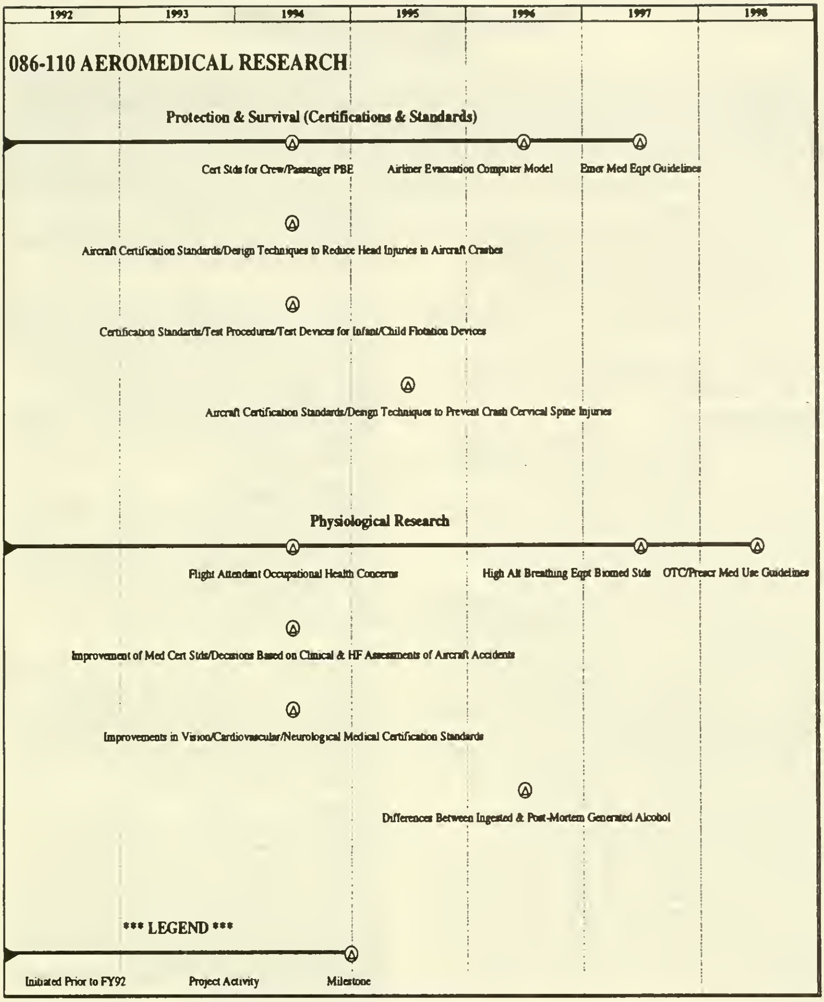
Ongoing research will provide for aircraft certification standards and design techniques in FY 1995 to prevent cervical spine (neck) injuries in crashes; development of a computer model of emergency evacuation of airliners for use as a design and regulatory evaluation tool in FY 1996; and FY 1997 guidelines for the selection, placement and utilization of emergency medical equipment in commercial and medical air transport aircraft.

Physiological and Clinical Research
FY 1994 efforts will: (1) improve vision medical certification standards; (2) improve medical certification standards based on assessments of aircraft accidents; and (3) support occupational health assessments of aviation populations--a joint National Institute of Occupational Safety and Health-FAA health review of cabin crew.

Benefits:

Our biomedical, biochemical, and bioengineering products have worldwide application; this research improves the process of medically restricting unsafe pilots and reduces morbidity and mortality associated with aircraft accidents.

Our products permit us to specify the role of drugs and alcohol, and other clinical factors, in accident causation. Some people will undoubtedly escape death as a result of our FY 1994 products, and countless others will be spared prolonged recovery from personal injuries.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
4,395	4,270	4,233

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 9a

Program Title: Environment and Energy

Amount: $5,385,000

R,E&D Plan No: 091-110
091-111
091-112
091-120
092-110

Basis for Request:
The FAA is charged with mitigating the adverse environmental impact of aviation on the public in terms of noise abatement and air quality consistent with prudent planning for an effective aviation system and the need for increasing capacity of the system.

The Environment and Energy program focuses on three major areas - noise, air pollution, and energy.

Program Request:
The general thrust of this program is to: (1) improve and expand existing aircraft and airport noise and air quality assessment prediction capabilities for the consideration of the impact of FAA policies and actions on the aviation system; (2) examine community response as a function of noise as a member of the Federal Interagency Committee on Noise; (3) investigate the state of technology to reduce aircraft noise from airframe and engines in a joint research program with NASA; (4) explore the technical and scientific issues to simplify the noise certification procedure for large helicopters while retaining regulatory stringency and affording applicants at least a 50 percent cost savings; (5) expand the present vertical flight prediction capability to include other types of rotorcraft (tiltwing/tiltrotor) and to incorporate sophisticated geographic information systems; (6) investigate the ramifications of aviation activity on global climate change and the ozone layer; (7) update the Energy Management Reporting System to track FAA facilities compliance with executive directives on energy conservation; and (8) develop an aviation fuel shortage assessment model for contingency planning.

Noise
During FY 1994, research will support the development of a system of noise analysis and impact assessment tools and processes (delivery expected in FY 1995) to identify optimal airport development alternatives, avert public controversy, and accommodate the range of federal guidelines. FY 1994 activities will also support the development of simplified noise certification procedures for large helicopters which maintains regulatory integrity (expected completion in FY 1996).

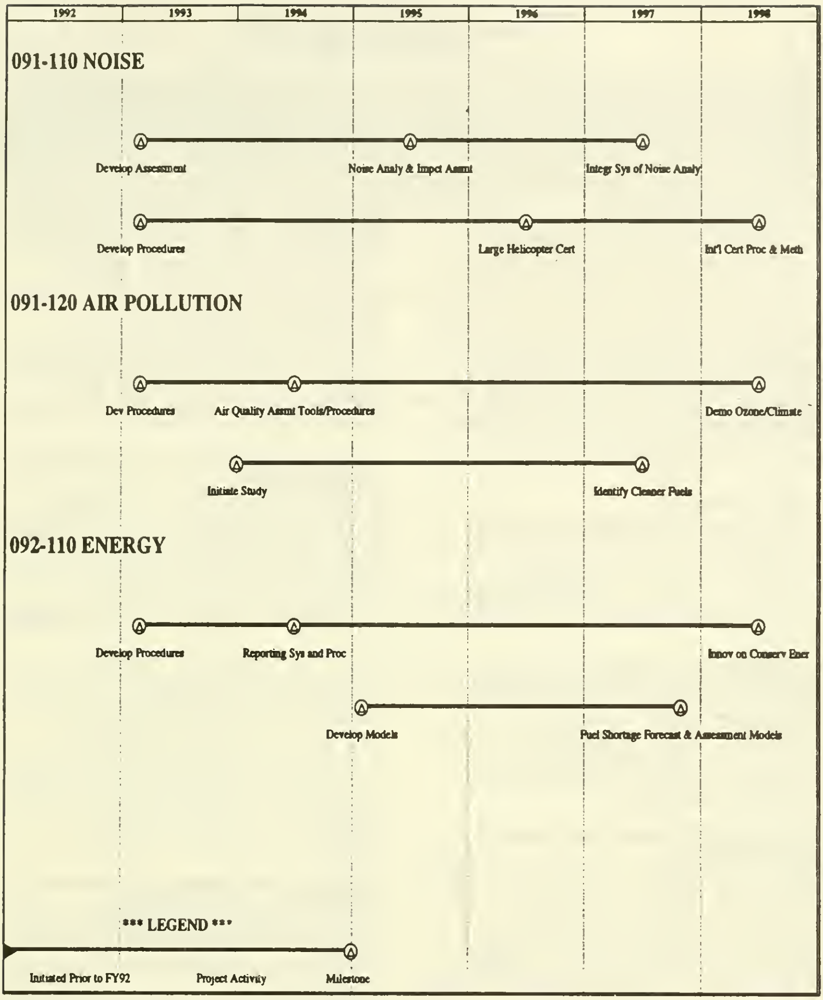
Longer term noise research is aimed at an integrated system of aircraft noise analysis and community assessment tools to support major air traffic management and airspace improvement projects. Additionally, we will start the investigation of technical procedures and methodologies to establish a "level playing field" for U.S. manufacturers in international noise certification.

Air Pollution
Research is directed at near-term air quality assessment tools and procedures in FY 1994 to support airport development and capacity enhancement, and longer-term efforts to identify both cleaner aviation fuels and the role of aviation in global climate change.

Energy
The program is directed at the FY 1994 implementation of reporting systems and procedures to monitor the agency's progress in complying with Executive Order 12759, Federal Energy Management. We will continue innovative research on aviation-related energy conservation for both FAA and industry.

Benefits:
The primary benefits of this program relate to the productivity of the aviation system, the competitiveness of the U.S. aviation industry; and the efficient use of energy in agency facilities. Better means of assessing aviation environmental impacts will lead to better agency decisions on the aviation system and reduce environmental constraints on airport and system capacity.

Research into new source noise and emissions' abatement technologies will reduce adverse environmental impacts of aviation activity and help maintain the position of the U.S. Aviation industry in the international marketplace.



FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
4,000	4,750	5,385

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1994

Budget Item No: 10a **R,E&D Plan No: APPENDIX A**

Program Title: Innovative/Cooperative Research

Amount: $4,725,000

Basis for Request:
Provide the FAA technical community with innovative access tools for acquiring forefront research through university and non-profit institution research grants, centers of excellence for long term aviation research, small business reseach contracts, independent research from industry and government agencies, and cooperative research agreements. To act as the agency focal point for all technology transfer program activities. Through this program activity, FAA satisfies several congressionally mandated research program requirements and stimulates new ideas and technologies.

Program Request:

Transportation Research Board (TRB)
Fellowships will be given under the Graduate Research Award Program on Public Sector Aviation Issues to stimulate thought, discussion and research by those who may become the future managers and decision makers in aviation.

FAA/NASA Joint University Program
An example of topics to be studied include direct aircraft attitude and heading determination using GPS; adaptive terminal area decision support for final approach controllers; applications of stochastic control theory to aircraft in windshear and windrotor conditions.

Small Business Innovative Research (SBIR) Program
Research topics will be chosen in areas of aircraft safety, air traffic control and flight service technology, airport technology, human factors, and information technology. Products include: agency and project reports, patents and licenses, Small Business Administration report, and hardware and software deliverables.

FAA/NASA Cooperative Programs
Cooperative research and development will continue under memoranda of understanding and project tasks established in human factors, severe weather, cockpit/ATC integration, airworthiness, environmental compatibility, and program support.

University Fellowship Research Program
Research will be conducted by fellows in conjunction with other research programs such as aircraft tires, inflight icing, and aging aircraft.

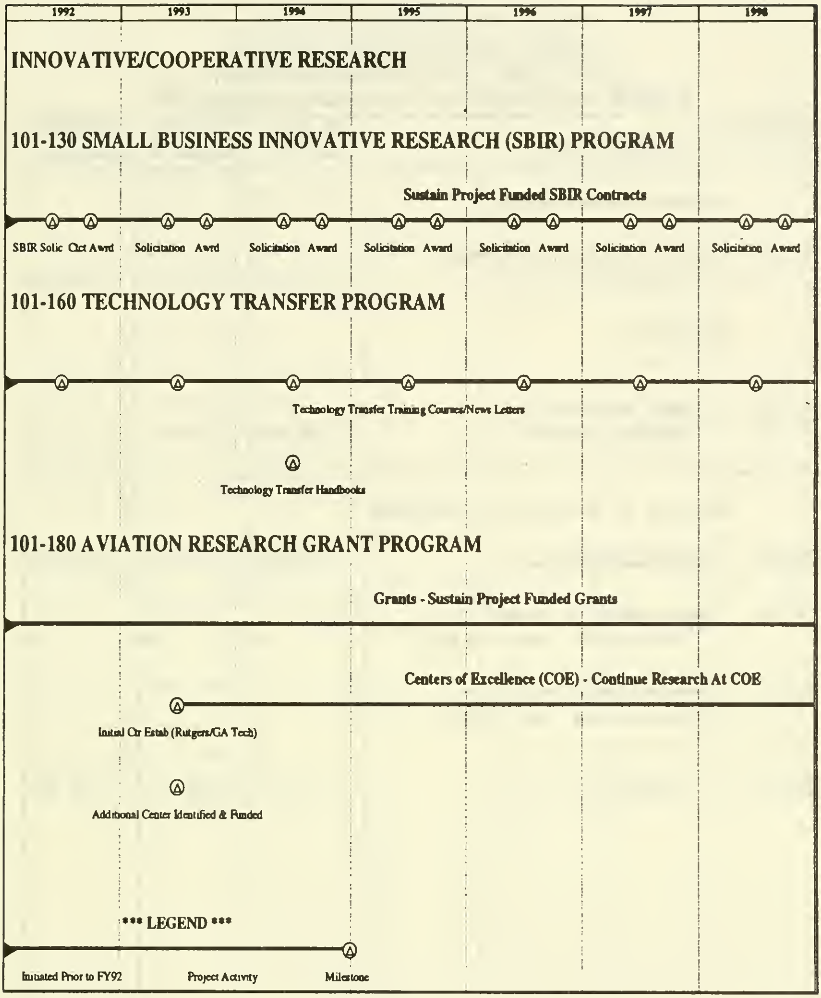
Technology Transfer Program
Training will continue in Cooperative Research and Development Agreements (CRDA), patents/licensing, and royalty sharing. (The CRDA Program saved the FAA $6 million in FY 1993.) The Technical Employee Exchange Program and seminar series will continue.

Independent Research and Development (IR&D) Program
The FAA will continue to influence the direction of aviation related IR&D. Closer relationships with industry and government will be established through Technical Interchange Groups in the framework of the IR&D program. IR&D information will be obtained from industrial sources and will be matched with relevant ongoing FAA R&D programs.

Aviation Research Grant Program
A national solicitation will be issued and a peer review process employing technical experts from FAA will review the proposals on a team basis and research grants will be awarded. Funding will be applied to the Center of Excellence identified in FY 1993 in a 50 percent sharing with state, local, and private sources as required by law. The process of identifying additional centers of excellence will be continued.

Innovative Development and Engineering Applications (IDEA) Program
Innovative proposals will be evaluated in various technology areas and expert advice will be given on projects selected for implementation.

Benefits:
The innovative and cooperative research program provides comprehensive, cost-effective R&D support through the promotion of: joint efforts between the FAA, DOT, and NASA; University Fellowship and Grant programs; SBIR; technology transfer between Federal laboratories, universities and the private sector; and increased aviation community interest.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INNOVATIVE/COOPERATIVE RESEARCH
101-130 SMALL BUSINESS INNOVATIVE RESEARCH (SBIR) PROGRAM
Sustain Project Funded SBIR Contracts
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101-160 TECHNOLOGY TRANSFER PROGRAM
Technology Transfer Training Courses/News Letters
Technology Transfer Handbooks
101-180 AVIATION RESEARCH GRANT PROGRAM
Grants - Sustain Project Funded Grants
Centers of Excellence (COE) - Continue Research At COE
Initial Ctr Estab (Rutgers/GA Tech)
Additional Center Identified & Funded
*** LEGEND ***
Initiated Prior to FY92
Project Activity
Milestone

FUNDING SUMMARY ($000)		
FY 1992 APPROPRIATED	FY 1993 APPROPRIATED	FY 1994 REQUESTED
2,827	4,177	4,725

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
TRUST FUND SHARE OF FAA OPERATIONS
Program and Financing (in thousands of dollars)

Identification code: 69-8104-0-7-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Program by activities:			
10.00	Total obligations (object class 25.0)	2,109,625	2,279,321	2,268,750
	Financing:			
40.00	Budget Authority (appropriations)	2,109,625	2,279,321	2,268,750
	Relation of obligations to outlays:			
71.00	Total obligations	2,109,625	2,279,321	2,268,750
72.10	Receivables in excess of obligations, start of year	0	-8	0
74.10	Receivables in excess of obligations, end of year	8	0	0
90.00	Outlays	2,109,633	2,279,313	2,268,750

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
TRUST FUND SHARE OF FAA OPERATIONS
Program and Financing (in thousands of dollars)

Identification code: 69-8104-0-7-402		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Program by activities:			
10.00	Total obligations (object class 25.0)	2,109,625	2,279,321	2,268,750
	Financing:			
40.00	Budget Authority (appropriations)	2,109,625	2,279,321	2,268,750
	Relation of obligations to outlays:			
71.00	Total obligations	2,109,625	2,279,321	2,268,750
72.10	Receivables in excess of obligations, start of year	0	-8	0
74.10	Receivables in excess of obligations, end of year	8	0	0
90.00	Outlays	2,109,633	2,279,313	2,268,750

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

TRUST FUND SHARE OF FAA OPERATIONS

The Airport and Airway Improvement Act of 1982, as amended, and section 9502 of the Internal Revenue Code of 1986 authorizes use of the Airport and Airway Trust Fund as the source of financing a portion of FAA's operating costs. For 1994, it is proposed that $2,268,750,000 of the Operations appropriation be financed from the trust fund to provide an overall 75 percent cost recovery for FAA programs in total. Financing a portion of the operation's costs from the trust fund means that the users of the aviation system will help pay for the salaries and related expenses of FAA's critical safety employees who have the daily responsibility of ensuring the safety of the flying public.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1994 CONGRESSIONAL BUDGET
(Dollars In Thousands)

	TOTAL		AIR TRAFFIC		NAS LOGISTICS	
Description	FY 1993	FY 1994	FY 1993	FY 1994	FY 1993	FY 1994
FULL-TIME PERMANENT	$2,465,950	$2,468,460	$1,393,860	$1,397,556	$50,845	$51,315
OTHER THAN FULL-TIME PERM.	27,109	30,378	9,434	9,752	225	227
OTHER PERSONNEL COMPENSATION	272,713	270,986	205,690	208,382	3,231	3,261
SPECIAL PERS. SERV. PAYMENTS	5,349	5,472	0	0	0	0
TOTAL PERSONNEL COMP.	2,771,121	2,775,296	1,608,984	1,615,690	54,301	54,803
CIVILIAN PERSONNEL BENEFITS	660,529	682,241	348,643	361,335	10,769	10,868
BENEFITS FOR FORMER PERSONNEL	1,242	1,222	12	12	0	0
TRAVEL AND TRANSP. OF PERSONS	106,795	106,455	8,109	7,709	1,377	1,313
TRANSPORTATION OF THINGS	18,327	20,088	384	1,779	3,839	3,787
RENTAL PAYMENTS TO OTHERS	43,639	44,758	418	401	753	743
COMM.,UTILITIES & MISC. CHARGES	381,535	380,995	1,545	1,479	6,490	6,448
PRINTING & REPRODUCTION	13,228	13,388	77	74	6	6
CONSULTING SERVICES	1,449	1,505	0	0	0	0
OTHER SERVICES	458,132	465,271	112,622	116,054	50,762	52,075
[WORKING CAPITAL FUND]	[22,875]	[24,400]	[0]	[0]	[2,767]	[2,586]
SUPPLIES AND MATERIAL	65,731	68,214	2,532	2,424	39,088	41,559
EQUIPMENT	15,602	15,821	446	427	3,467	3,420
LANDS & STRUCTURES	154	130	0	0	0	0
INSURANCE CLAIMS & INDEM.	516	616	43	43	2	2
TOTAL, ALL OBJECTS	$4,538,000	$4,576,000	$2,083,815	$2,107,427	$170,854	$175,024

EX-2

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1994 CONGRESSIONAL BUDGET
(Dollars In Thousands)

	SYSTEMS MAINTENANCE		LEASED TELECOMMUNICATIONS		AVIATION REGULATION AND CERTIFICATION	
Description	FY 1993	FY 1994	FY 1993	FY 1994	FY 1993	FY 1994
FULL-TIME PERMANENT	$471,867	$465,885	$0	$0	$229,637	$236,671
OTHER THAN FULL-TIME PERM.	5,590	8,422	0	0	2,030	2,075
OTHER PERSONNEL COMPENSATION	46,907	43,489	0	0	4,985	3,989
SPECIAL PERS. SERV. PAYMENTS	1,327	1,327	0	0	213	213
TOTAL PERSONNEL COMP.	525,691	519,123	0	0	236,865	242,948
CIVILIAN PERSONNEL BENEFITS	104,293	102,916	0	0	53,276	66,544
BENEFITS FOR FORMER PERSONNEL	10	10	0	0	0	0
TRAVEL AND TRANSP. OF PERSONS	20,978	24,212	0	0	14,902	14,468
TRANSPORTATION OF THINGS	11,038	11,037	0	0	1,192	1,621
RENTAL PAYMENTS TO OTHERS	27,802	28,556	0	0	10,468	10,750
COMM.,UTILITIES & MISC. CHARGES	55,347	55,347	294,261	292,213	1,062	1,090
PRINTING & REPRODUCTION	310	269	0	0	85	87
CONSULTING SERVICES	0	0	0	0	0	0
OTHER SERVICES	90,229	113,238	26,515	20,731	13,433	13,242
[WORKING CAPITAL FUND]	[0]	[0]	[4,273]	[4,279]	[0]	[0]
SUPPLIES AND MATERIAL	9,494	9,486	290	297	1,288	1,283
EQUIPMENT	2,123	2,123	2,330	2,393	758	746
LANDS & STRUCTURES	77	51	0	0	77	79
INSURANCE CLAIMS & INDEM.	68	68	0	0	226	228
TOTAL, ALL OBJECTS	$847,460	$866,436	$323,396	$315,634	$333,632	$343,086

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1994 CONGRESSIONAL BUDGET
(Dollars In Thousands)

	AVIATION STANDARDS		CIVIL AVIATION SECURITY		NAS DESIGN AND MANAGEMENT	
Description	FY 1993	FY 1994	FY 1993	FY 1994	FY 1993	FY 1994
FULL-TIME PERMANENT	$55,185	$52,532	$39,425	$39,735	$30,930	$31,102
OTHER THAN FULL-TIME PERM.	747	718	645	649	994	999
OTHER PERSONNEL COMPENSATION	2,676	2,611	2,506	2,526	751	755
SPECIAL PERS. SERV. PAYMENTS	29	122	43	44	222	223
TOTAL PERSONNEL COMP.	58,636	55,983	42,619	42,954	32,897	33,079
CIVILIAN PERSONNEL BENEFITS	12,944	13,305	11,677	11,769	4,766	4,792
BENEFITS FOR FORMER PERSONNEL	0	0	0	0	0	0
TRAVEL AND TRANSP. OF PERSONS	4,483	4,274	4,896	4,847	958	1,017
TRANSPORTATION OF THINGS	494	494	581	602	332	333
RENTAL PAYMENTS TO OTHERS	1,067	1,067	1,797	1,866	0	0
COMM.,UTILITIES & MISC. CHARGES	1,623	1,579	201	207	6,415	7,647
PRINTING & REPRODUCTION	108	8	8	8	10	10
CONSULTING SERVICES	0	0	0	0	388	389
OTHER SERVICES	31,947	29,377	6,105	6,206	8,806	10,263
[WORKING CAPITAL FUND]	[49]	[61]	[1,724]	[1,760]	[0]	[0]
SUPPLIES AND MATERIAL	8,185	8,186	407	422	573	675
EQUIPMENT	2,099	2,100	300	312	164	318
LANDS & STRUCTURES	0	0	0	0	0	0
INSURANCE CLAIMS & INDEM.	0	0	0	0	0	0
TOTAL, ALL OBJECTS	$121,586	$116,373	$68,591	$69,193	$55,309	$58,523

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1994 CONGRESSIONAL BUDGET
(Dollars In Thousands)

Description	AIRPORTS		DIRECTION, STAFF & SUPPORTING SERVICES		HUMAN RESOURCE MANAGEMENT	
	FY 1993	FY 1994	FY 1993	FY 1994	FY 1993	FY 1994
FULL-TIME PERMANENT	$28,415	$28,452	$63,998	$63,984	$71,748	$71,009
OTHER THAN FULL-TIME PERM.	811	820	2,983	3,067	2,820	2,787
OTHER PERSONNEL COMPENSATION	535	541	2,020	2,020	2,500	2,476
SPECIAL PERS. SERV. PAYMENTS	42	43	1,068	1,068	45	44
TOTAL PERSONNEL COMP.	29,803	29,856	70,069	70,139	77,113	76,316
CIVILIAN PERSONNEL BENEFITS	5,510	5,502	13,543	14,024	89,876	95,908
BENEFITS FOR FORMER PERSONNEL	0	0	20	0	1,200	1,200
TRAVEL AND TRANSP. OF PERSONS	1,537	1,461	3,656	3,629	44,607	42,339
TRANSPORTATION OF THINGS	60	25	161	164	185	185
RENTAL PAYMENTS TO OTHERS	272	300	833	846	193	193
COMM.,UTILITIES & MISC. CHARGES	99	100	14,213	14,606	257	257
PRINTING & REPRODUCTION	37	20	12,547	12,866	27	27
CONSULTING SERVICES	0	0	1,061	1,116	0	0
OTHER SERVICES	3,323	3,744	37,702	37,183	65,416	52,567
[WORKING CAPITAL FUND]	[0]	[0]	[12,817]	[14,427]	[1,245]	[1,287]
SUPPLIES AND MATERIAL	219	200	1,331	1,378	1,937	1,937
EQUIPMENT	44	50	1,699	1,760	1,901	1,901
LANDS & STRUCTURES	0	0	0	0	0	0
INSURANCE CLAIMS & INDEM.	2	0	175	275	0	0
TOTAL, ALL OBJECTS	$40,906	$41,258	$157,010	$157,986	$282,712	$272,830

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1994 CONGRESSIONAL BUDGET
(Dollars In Thousands)

Description	HEADQUARTERS ADMINISTRATION	
	FY 1993	FY 1994
FULL-TIME PERMANENT	$30,040	$30,219
OTHER THAN FULL-TIME PERM.	830	862
OTHER PERSONNEL COMPENSATION	913	936
SPECIAL PERS. SERV. PAYMENTS	2,360	2,388
TOTAL PERSONNEL COMP.	34,143	34,405
CIVILIAN PERSONNEL BENEFITS	5,232	5,278
BENEFITS FOR FORMER PERSONNEL	0	0
TRAVEL AND TRANSP. OF PERSONS	1,292	1,186
TRANSPORTATION OF THINGS	61	61
RENTAL PAYMENTS TO OTHERS	36	36
COMM.,UTILITIES & MISC. CHARGES	22	22
PRINTING & REPRODUCTION	13	13
CONSULTING SERVICES	0	0
OTHER SERVICES	11,272	10,591
[WORKING CAPITAL FUND]	[0]	[0]
SUPPLIES AND MATERIAL	387	367
EQUIPMENT	271	271
LANDS & STRUCTURES	0	0
INSURANCE CLAIMS & INDEM.	0	0
TOTAL, ALL OBJECTS	$52,729	$52,230

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT APPROPRIATION
OBJECT CLASSIFICATION ($000)

	FY 1992	FY 1993	FY 1994
Personnel Compensation			
Full-time permanent	77,646	115,110	118,331
Other than full-time permanent	1,086	1,610	1,533
Other personnel compensation	4,978	7,380	6,389
Special personnel services payments	1,061	1,573	1,532
Total personnel benefits	84,771	125,673	127,785
Civilian personnel benefits	17,530	27,587	33,967
Travel and transportation of persons	25,851	33,459	36,748
Transportation of others	2,504	2,952	3,264
Rental payments to others	13,324	15,709	16,827
Comm., utilities and misc. charges	3,959	4,668	5,023
Printing and Reproduction	270	318	502
Consulting Services	2	2	2
Other services	1,110,692	1,308,489	1,387,293
Supplies and materials	34,452	40,619	43,198
Equipment	692,604	816,580	866,468
Lands and structures	144,302	170,132	180,577
Grants, subsidies, and contributions	6,582	7,760	8,288
Insurance claims and indemnities	44	52	58
Subtotal obligations	2,136,887	2,554,000	2,710,000
Investment Proposal	0	0	106,718

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
OBJECT CLASSIFICATION ($000)

	FY 1992	FY 1993	FY 1994
Personnel Compensation			
Full-time permanent	35,862	35,173	36,145
Other than full-time permanent	1,869	1,888	1,943
Other personnel compensation	613	1,120	1,155
Special personnel services payments	1,127	414	458
Total personnel benefits	39,471	38,595	39,701
Civilian personnel benefits	6,971	7,820	8,018
Travel and transportation of persons	3,841	4,264	4,470
Transportation of things	248	267	287
Rental payments to others	56	60	65
Comm., utilities and misc. charges	814	875	941
Printing and Reproduction	33	35	38
Other services	146,479	176,522	165,473
Supplies and materials	3,784	4,068	4,373
Equipment	5,957	6,404	6,884
Lands and structures	50	0	0
Grants, subsidies, and contributions	4,390	7,389	7,121
Subtotal obligations	212,094	246,299	237,371
Investment Proposal	0	0	12,629

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FY 1994 CONGRESSIONAL BUDGET

PERMANENT CHANGE OF STATION

APPROPRIATION	FY 1992 ACTUAL NO OF MOVES	FY 1992 ACTUAL AMOUNT	FY 1993 ESTIMATE NO OF MOVES	FY 1993 ESTIMATE AMOUNT	FY 1994 ESTIMATE NO OF MOVES	FY 1994 ESTIMATE AMOUNT
OPERATIONS:						
Operation of Traffic Control System	745	$26,620	235	$9,000	466	$19,000
NAS Logistics Support	4	72	3	70	3	72
Maintenance of Traffic Control System	424	12,190	223	6,689	223	6,869
Leased Telecommunications Services	0	0	0	0	0	0
Aviation Regulation and Certification:						
Flight Standards	69	2,880	23	1,149	76	3,586
Aircraft Certification	29	1,623	24	660	24	682
PD&E	0	0	0	0	0	0
Total, AVR	98	4,503	47	1,809	100	4,268
Aviation Standards:						
Flight Program and Mgmt. of Aircraft	34	1,238	30	1,100	27	1,032
Records Servicing and Analysis	0	0	0	0	0	0
Medical	6	239	8	192	4	200
PD&E	1	81	1	75	1	81
Total, AVS	41	1,558	39	1,367	32	1,313
Civil Aviation Security	52	1,886	50	2,021	50	2,074
NAS Design and Management	3	149	4	91	1	60
Administration of Airports	12	482	2	120	3	135
Direction, Staff & Supporting Services	11	1,136	10	1,003	8	807
Human Resource Management	38	1,514	34	1,172	29	1,160
Headquarters Administration	1	57	2	118	3	183
Total Operations	1,429	50,167	649	23,460	918	35,941
FACILITIES AND EQUIPMENT	100	3,000	682	25,639	470	18,190
RESEARCH, ENGR. & DEVELOPMEN	9	395	23	1,150	23	1,150
TOTAL, ALL APPROPRIATIONS	1,538	53,562	1,354	50,249	1,411	55,281

FEDERAL AVIATION ADMINISTRATION
Technical Center

	FY 1993 ENACTED		FY 1994 REQUESTED	
	Positions	Amount	Positions	Amount
RESEARCH, ENGINEERING AND DEVELOPMENT:				
Conduct of test and evaluation (R,E&D)	406	102,080,000	406	108,891,000
NAS Design and Management (Operations)	160	24,348,000	160	26,348,200
Subtotal	566	126,428,000	566	135,239,200
FACILITIES AND EQUIPMENT:				
Test facilities and improvements	388	53,886,000	388	57,177,000
OPERATIONS:				
Human Resource Management				
Centralized Training and Labor, Personnel and Human Relations	24	1,654,000	23	1,655,000
Systems Maintenance				
Technical Center	398	33,766,900	396	40,598,400
Aviation Security	6	264,200	6	270,000
Technical Center Operations				
Medical Program	4	60,000	4	60,000
Direction, Staff and Supporting Service	37	3,049,200	37	3,074,450
Supervision, administration and maintenance of the Center	119	20,253,100	138	23,155,278
Subtotal	160	23,362,300	179	26,289,728
Total Program, Technical Center	1,542	239,361,400	1,558	261,229,328
Distribution by Appropriation				
Operations	748	83,395,400	764	95,161,328
Facilities and Equipment	388	53,886,000	388	57,177,000
Research, Engineering and Dev.	406	102,080,000	406	108,891,000
Total	1,542	239,361,400	1,558	261,229,328

FEDERAL AVIATION ADMINISTRATION
Mike Monroney Aeronautical Center

	FY 1993 ENACTED		FY 1994 REQUESTED	
	Positions	Amount	Positions	Amount
Centralized Training:	745	113,954,000	642	110,390,000
Logistics Center:				
Material, procurement, project management and shops	676	135,673,600	676	136,566,900
(Operations-NAS Logistics)	620	93,669,600	620	98,504,900
(Facilities and Equipment)	56	42,004,000	56	38,062,000
Civil Aeromedical Opers & Research:				
Operations	126	6,570,000	126	6,560,000
Direct research at Civil Aeromedical Institute Laboratories (R,E&D)	93	10,223,000	93	9,352,000
Subtotal	219	16,793,000	219	15,912,000
Aviation Regulation & Certification				
Certification 1/	19	1,164,000	19	1,216,800
Flight Standards 1/	84	7,543,000	84	7,585,900
Aviation Standards:				
Records servicing and analysis	210	7,240,000	207	7,093,000
Operations, maintenance, modification and overhaul of aircraft	783	131,072,000	783	198,961,000
(Operations)	751	70,628,000	751	68,391,000
(Facilities and Equipment)	32	60,444,000	32	130,570,000
Subtotal	1,096	147,019,000	1,093	214,856,700
Aviation Security:	24	945,400	24	975,000
Aeronautical Center Operations:				
NAS Logistics Support	275	26,193,100	275	25,543,800
Direction, Staff and Support	260	19,682,200	263	22,154,100
Air Traffic	12	721,400	12	1,137,000
Human Resource Management Division	72	4,524,000	68	6,890,000
Subtotal	619	51,120,700	618	55,724,900
Systems and Maintenance:				
Airway engineering support	65	8,735,400	65	8,954,200
Total Program, Aeronautical Center	3,444	474,241,100	3,337	543,379,700
Distribution by Appropriation:				
Operations	3,263	361,570,100	3,156	365,395,700
Facilities and Equipment	88	102,448,000	88	168,632,000
Research, Engineering and Development	93	10,223,000	93	9,352,000
Total	3,444	474,241,100	3,337	543,379,700

1/ Positions physically located at center, but staffing and resources are part of Headquarters allowance, and organization.

FEDERAL AVIATION ADMINISTRATION
Mike Monroney Aeronautical Center

Centralized Training

Included under this heading:

FAA Academy - The focal point for training the agency's technical work force. Resident and non-resident training are provided in air traffic control, facility maintenance, flight, and flight related technical subjects. Field training efforts are supported through computer based instruction, correspondence study and centralized development of on-the-job training materials.

Transportation Safety Institute - The institute provides training in accident and incident investigations and regulatory compliance techniques for all Department of Transportation (DOT) modal administrations. Aviation security training is provided for employees of several modal administrations within DOT.

Center for Management Development - The central point for the development and conduct of supervisory and managerial training for all FAA supervisory and management personnel. Courses are also designed to keep supervisors and managers current on newly developed supervisory and management practices and concepts, and to improve human relations skills. The training center is located in Palm Coast, Florida.

FAA Logistics Center

Included under this heading are staffing and funding requirements for warehousing, procurement, distribution and material control functions necessary to furnish supplies, spare parts and components for day-to-day air navigation and air traffic control facilities maintenance and operation and agency aircraft (other than aircraft utilized for research and development). The work also involves packaging and shipping of facility components to sites where new facilities are being installed or relocated. Shop operations are conducted for the repair and overhaul of navigation aids, air traffic control and communication equipment; as well as providing maintenance support of technical equipment used at the FAA Academy or training programs.

Aviation Regulation and Certification

Functions performed at the Office of Aviation System Standards (formerly the Aviation National Field Office) include operating and managing national aviation safety data systems; developing airmen examination and examining standards; and developing airworthiness standards and advisory material. In addition, the Office of Aviation System Standards publishes and maintains aircraft certification technical publications.

Aviation Standards

Functions performed at the Office of Aviation System Standards Office include the issuance of airmen certificates, aircraft registration, and the recording of conveyance affecting title to U.S. aircraft components. Also included are flight safety activities which are designed to ensure the adequacy and accuracy of air navigation facilities and to provide for the development and standardization of flight procedures; FAA aircraft fleet maintenance and engineering; and regulatory and standards development.

Aeronautical Center Operations

This program provides local human resource management, staff and supporting services to all of the operating programs located at the Aeronautical Center. The activities included are Direction and Management, Civil Rights, Legal, Logistics Support, Budget, Public Affairs, Personnel Management, Labor Relations, Management Systems, Accounting Administration Services, Data Systems, Printing, Building and Grounds Maintenance, and Penalty Mail. This program also includes common use goods and services such as furniture, supplies, GSA store purchases, and equipment for various organizations located at the Center.

System Maintenance

The National Airway Systems Engineering Division is one of the principal elements under the Operational Support Service. Primary functional responsibilities are (1) providing direct hardware and software engineering support to field facility maintenance elements, (2) encompasses in-service improvements and modification development, evaluation, implementation, direct engineering support to field facilities, and maintenance directives publications and issuance for NAS systems, i.e., Environmental, Weather, radar, Beacon, Navaids, and Communications, and (3) providing support to organizations involved in the development/implementation of new NAS systems, developing engineering designs and preparing facility modifications. Location of this function at the Aeronautical Center has an added advantage of providing engineers involved with direct access to the equipment with which manuals and modifications are concerned.

Civil Aeromedical Institute

The Civil Aeromedical Institute (CAMI) is devoted to aeromedical operations and research activities. Operational activities include (1) review, documentation, information retrieval, and adjudication of airmen medical certification, (2) operation of the aviation medical examiner system, (3) provision of occupational health and clinical services for all agency employees and students at the Aeronautical Center, (4) industrial hygiene assessments and review of FAA activities with respect to the occupational health portion of the Occupational Safety and Health Act, (5) conduct of the airmen medical education program, (6) validation of medical qualification decisions, and (7) direction of aeromedical human factors and medical research programs.

The research programs are responsive to the National plan for Aviation Human Factors and are comprised of the following environments; Flight Deck, Air Traffic Control, Flight Deck/ATC Integration, Aircraft Maintenance, Airway Facilities and Aeromedical Research. The primary objectives of these research activities are to: (1) increase the effectiveness of pilot and aircrew; (2) define and limit aircrew and passenger risks in normal and emergency civilian flight conditions; (3) determine the involvement of medical factors in accident; (4) develop improved state-of-the-art knowledge and techniques in support of medical qualifications; (5) develop and evaluate improved selection and training systems for ATCS and other aviation personnel; (6) evaluate the impact of advanced automation systems on ATCS and pilot performance; (7) facilitate information sensing, processing and control in pilot/ATCS communications; and (8) quantify individual and team performance to reduce human errors and enhance safety and productivity in the operation and maintenance of the National Airspace Systems.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
General Provisions

SEC. 301. During the current fiscal year applicable appropriations to the Department of Transportation shall be available for maintenance and operation of aircraft; hire of passenger motor vehicles and aircraft; purchase of liability insurance for motor vehicles operating in foreign countries on official department business; and uniforms, or allowances therefor, as authorized by law (5 U.S.C. 5901-5902).

SEC. 303. Funds appropriated under this Act for expenditures by Federal Aviation Administration shall be available (1) except as otherwise authorized by the Act of September 30, 1950 (20 U.S.C. 236-244), for expenses of primary and secondary schooling for dependents of Federal Aviation Administration personnel stationed outside the continental United States at costs for any given area not in excess of those of the Department of Defense for the same area, when it is determined by the Secretary that the schools, if any, available in the locality are unable to provide adequately for the education of such dependents, and (2) for transportation of said dependents between schools serving the area that they attend and their places of residence when the Secretary, under such regulations as may be prescribed, determines that such schools are not accessible by public means of transportation on a regular basis.

SEC. 306. None of the funds in this Act shall be used for the planning or execution of any program to pay the expenses of, or otherwise compensate, non-Federal parties intervening in regulatory or adjudicatory proceedings funded in this Act.

SEC. 307. None of the funds appropriated in this Act shall remain available for obligation beyond the current fiscal year, nor may any be transferred to other appropriations, unless so provided herein.

SEC. 309. The expenditure of any appropriation under this Act for any consulting service through procurement contract pursuant to section 3109 of title 5, United States Code, shall be limited to those contracts where such expenditures are a matter of public record and available for public inspection, except where otherwise provided under existing law, or under existing Executive order issued pursuant to existing law.

SEC. [317] 313. Notwithstanding any other provision of law, funds appropriated in this or any other Act intended for studies, reports, training, salaries, or research, and related costs thereof including necessary capital expenses, including site acquisition, construction and equipment, are available for such purposes to be conducted through contracts, grants, or financial agreements with the educational institutions that are specified in such Acts or in any report accompanying such Acts.

SEC. [319] 314. [ESSENTIAL AIR SERVICE COMPENSATION.-] Not withstanding any other provision of law, the Secretary of Transportation shall make payment of compensation under subsection 419 of the Federal Aviation Act of 1958, as amended, only to the extent and in the manner provided in appropriations Acts, at times and in a manner determined by the Secretary to be appropriate, and claims for such compensation shall not arise except in accordance with this provision.

SEC. [321] 315. The Secretary of Transportation is authorized to transfer funds appropriated for any office of the Office of the Secretary to any other Office of the Secretary: Provided, That no appropriation shall be increased or decreased by more than 5 per centum by all such transfers: Provided further, That any such transfer shall be [submitted for approval] reported to the House and Senate Committees on Appropriations.

SEC [324] 316. Notwithstanding any other provision of law, airports may transfer, without consideration, to the Federal Aviation Administration instrument landing systems (along with associated approach lighting equipment and runway visual range equipment) which conform to Federal Aviation Administration *design* and performance specifications, the purchase of which was assisted by a Federal airport aid program, airport development aid program or airport improvement program grant. The Federal Aviation Administration shall accept such equipment, which shall thereafter be operated and maintained by the Federal Aviation Administration in accordance with agency criteria.

SEC. [326] 317. None of the funds in this Act shall be available to award a multiyear contract for production end items that (1) includes economic order quantity or long lead time material procurement in excess of $10,000,000 in any one year of the contract or (2) includes a cancellation charge greater than $10,000,000 which at the time of obligation has not been appropriated to the limits of the government's liability or (3) includes a requirement that permits performance under the contract during the second and subsequent years of the contract without conditioning such performance upon the appropriation of funds: *Provided*, That this limitation does not apply to a contract in which the Federal Government incurs no financial liability from not buying additional systems, subsystems, or components beyond the basic contract requirements.

SEC. [328] 319. None of the funds in this Act shall be available for planning or executing any rules or regulations to add Passenger Facility Charges to the cost of travel benefits commonly known as "frequent flyer award certificates" or any other bonus program offered by any airline.

GLOSSARY OF ABBREVIATIONS APPEARING IN FAA JUSTIFICATION

AAS	Advanced Automation System
AAS	Automated Airport Service
ACARS	Air Carrier Address and Reporting System
ACCC	Area Control Computer Complex
ACD	Automatic Call Distributor
ACF	Area Control Facility
ACSEP	Aircraft Certification Survey Evaluation Program
ACT	Federal Aviation Administration Technical Center
ADAP	Airport Development Aid Program
ADAS	AWOS Data Acquisition System
ADCN	Agencywide Administrative Data Communications Network
ADDM	Automated Documentation Development and Maintenance
ADI	Attitude Direction Indicator
ADL	Aeronautical Data Link
ADP	Automated Data Processing
ADS	Automatic Dependent Surveillance
ADTN	Administrative Data Telecommunications Network
AERA	Automated En Route Air Traffic Control
AF	Airway Facilities
AFB	Air Force Base
AFIS	Automated Flight Inspections System
AFSS	Automated Flight Service Station
AIM	Aeronautical Information Management Program
AIP	Airport Improvement Program
ALS	Approach Light System
ALSIM	Airport Landside Simulation Model
ALSIP	Approach Lighting System Improvement Program
AMASS	Airport Movement Areas Safety System
AMIS	Aircraft Management Information System
AMMP	Agency Management Modernization Plan
AMS	Aeronautical Mobil Service
ANICS	Alaskan NAS Interfacility Communications System
AOS	Operational Support Service
ARF	Aviation Route Forecast
ARINC	Aeronautical Radio, Incorporated
ARRA	Aircraft Registration Records Administration System
ARTCC	Air Route Traffic Control Center
ARTS	Automatic Radar Terminal System
ASAS	Aviation Safety Analysis System
ASDE	Airport Surface Detection Equipment
ASDO	Aviation Standards District Office
ASOS	Automated Surface Observing System

ASER	Air Route Surveillance Radar
ASI	Aviation Safety Inspector
ASTA	Airport Surface Traffic Automation
ASR	Airport Surveillance Radar
ASRS	Aviation Safety Reporting System
ATAS	Automated Traffic Advisory Service
ATC	Air Traffic Control
ATCAC	Air Traffic Control Advisory Committee
ATCCC	Air Traffic Control Command Center
ATCRBS	Air Traffic Control Radar Beacon System
ATCT	Airport Traffic Control Tower
ATIS	Automated Terminal Information System
ATMS	Advanced Traffic Management System
ATN	Aeronautical Telecommunications
AT&T	American Telephone and Telegraph
AUTODIN	Automatic Digital Network
AVS	Office of Aviation Standards
AWIPS	Advanced Weather Information Processing Systems
AWIS	Airport Weather Information System
AWOS	Automated Weather Observing System
AWPG	Aviation Weather Products Generator
BANS	Bright Radar Indicator Tower Equipment (BRITE) Alpha-Numeric Subsystem
BIS	Budget Information System
BPS	Bits Per Second
BRITE	Bright Radar Indicator Tower Equipment
BUEC	Backup Emergency Communications
CAAA	Clean Air Act Amendment
CAD	Computer Aided Design
CADM	Computer-Aided Decisionmaking
CDS	Computer Dispatch System
CAEG	Computer Aided Engineering Graphics
CAIS	Comprehensive Airmen Information System
CAMI	Civil Aeromedical Institute
CARF	Central Altitude Reservation Function
CAT	Category
CBR	Commercially Based Rent
CBI	Computer Based Instruction
CCD	Configuration Control Decision
CCMS	Central Control Monitoring System
CCS	Controller Chart Supplement
CD	Common Digitizer
CDR	Critical Design Review
CDS	Computerized Dispatch System
CDTI	Cockpit Display of Traffic Information

CERAP	Combined Center Radar Approach Control
CERAP	Consolidate San Juan Facilities Center Radar Approach
CFCF	Central Flow Control Function
CFR	Crash-Fire Rescue
CIP	Capital Investment Plan
CIS	Computer Information Systems
CONUS	Continental, Contiguous, or Conterminous United States
CORN	Computer Resource Nucleus
COS	Change of Station
COTS	Commercial off-the-shelf
CPG	Central Programming Group
CPMIS	Consolidated Personnel Management Information System
CRDA	Converging Runway Display Aid
CSRS	Civil Service Retirement System
CT	Centralized Training
CUP	Central Utilities Plant
CWF	Controller Work Force
CWP	Central Weather Processor
CWSU	Central Weather Service Unit
DAFIS	Departmental Accounting and Financial Information System
DAR	Designated Airworthiness Representative
DARC	Direct Access Radar Channel
DASD	Digital Access Storage Devices
DASI	Digital Altimeter Setting Devices
DBRITE	Digital Bright Radar Indicator Tower Equipment
DECCO	Defense Commercial Communications Office
DEMARCS	Demarcation
DER	Designated Engineering Representative
DF	Direction Finder
DLP	Data Link Processor
DME	Distance Measuring Equipment
DMN	Data Multiplexing Network
DMSA	Designated Major Systems Acquisition
DOD	Department of Defense
DOL	Department of Labor
DOS	Department of State
DOT	Department of Transportation
DOTS	Dynamic Ocean Track System
DTDM	Deterministic Time Division Multiplexing
DUATS	Direct User Access Terminal
DVOR	Doppler Very High Frequency Omnidirectional Range
EAP	Employee Assistance Program
EARTS	En Route Automated Radar Tracking System
EDS	Explosive Detection System
EFAS	En Route Flight Advisory Service

EFIS	Electronic Flight Instrumentation Systems
EFR	Electronic Flight Rules
EIP	Employee Involvement Program
EIS	Enforcement Information System
EOQ	Economic Order Quantity
EPA	Environmental Protection Agency
EPATS	Electronic Planning and Tracking System
ETMS	Enhanced Traffic Management System
E&R	Exchange and Repair
FAA	Federal Aviation Administration
FAAP	Federal Aid Airport Program
FAALC	Federal Aviation Administration Logistics Center
FAATC	Federal Aviation Administration Technical Center
FAATSAT	FAA Telecommunications Satellite
FAM	Federal Air Marshall
FAR	Federal Air Regulation
F&E	Facilities and Equipment
FCC	Federal Communications Commission
FDD	Flight Data Display
FDIO	Flight Data Input/Output
FDR	Flight Data Recorder
FDS	Flight Director Systems
FEDSTRIP	Federal Standards Requisition and Issue Procedures
FEMA	Federal Emergency Management Agency
FERS	Federal Employees' Retirement System
FIAO	Flight Inspection Area Office
FL	Flight Level
FMS	Flight Management System
FOIA	Freedom of Information Act
FPL	Full Performance Level
FPS	Military Primary Radar
FRP	Federal Radio Navigation Plan
FSAS	Flight Service Automation System
FSDO	Flight Standards District Office
FSDPS	Flight Service Data Processing System
FSS	Flight Service Station
FSTN	Federal Secure Telephone Network
FTE	Flight Technical Error
FTE	Full-Time Equivalent
FTP	Full-Time Permanent
FTS	Federal Telecommunication System
G/A	General Aviation
GNAS	General National Airspace System
GPS	Global Positioning System
GREAT	Graduate-Level Research and Education in Aviation

	Technology
GSA	General Services Administration
HAT	Height Above Touchdown
HCVR	High Capacity Voice Recorders
HEMP	High Altitude Electromagnetic Pulse
HF	High Frequency
HI-EFAS	Hi Fi Altitude En Route Flight Advisory Service
HR	Human Relations
HRM	Human Resources Management
HUD	Head-Up Display
HVAC	Heating, Ventilating and Air Conditioning
IAO	International Aircraft Operator
IAPA	Instrument Approach Procedures Automation
ICAO	International Civil Aviation Organization
ICSS	Integrated Communications Switching System
IFDT	Interfacility Data Transfer
IFIO	International Flight Inspection Office
IFM	Integrated Flow Management
IFO	International Field Office
IFR	Instrument Flight Rules
IFSS	International Flight Service Station
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
INS	Inertial Navigation Systems
IOT&E	Independent Operational Test and Evaluation
IR&D	Independent Research and Development
IRMP	Information Resources Management Plan
ISP	Interim Support Plan
ISU	Inertial Sensor Unit
ISSS	Initial Sector Suite Subsystem
ITU	International Telecommunication Union
IVRS	Interim Voice Response System
JAWS	Joint Airport Weather Studies
JSS	Joint Surveillance System
LCN	Local Communications Network
LINCS	Leased Interfacility NAS Communications System
LIP	Limited Installation Program
LIS	Logistics and Inventory System
L,P&HR	Labor, Personnel and Human Relations
LLWAS	Low Level Wind Shear Alert System
LOFF	LORANC Flight Following
LORAN C	Long Range Navigation System - [Pulsed, Hyperbolic) Operating in 90 - 110 kHz (kilohertz) Frequency Band]
LRR	Long Range Radar

LRU	Line Replaceable Unit
LSA	Logistics Support Analysis
MAFIS	Multiple En Route Automatic Flight Inspection System
MALS	Medium-Intensity Approach Lighting System
MALSR	Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights
MAPO	Maintenance Automation Program Office
MAR	Minimally Attended Radar
MAX-E	Modular X-ray System
MCC	Maintenance Control Center
MCI	Mode C Intruder
MDA	Minimum Descent Altitude
MILSTRIP	Military Standard Requisition and Issue Procedures
MLS	Microwave Landing System
MMAC	Mike Monroney Aeronautical Center
MMS	Maintenance Management System
MNPS	Minimum Navigation Performance System
MODE S	Discrete Addressable Secondary Radar System with Data Link
MODE-S	Mode Select Air Traffic Control Radar Beacon System
MOPS	Minimum Operational Performance Standard
MPS	Maintenance Processor Subsystem
MSL	Mean Sea Level
MTD	Moving Target Detection
MWP	Meteorological Weather Processor
NAD	North American Datum
NADIN	National Airspace Data Interchange Network
NAILS	National Airspace System Integrated Logistic Support
NAMFAC	National Airspace Management Facility
NARE	National Airspace Review Enhancement
NARACS	National Radio Communications System
NAS	National Airspace System
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NASIP	National Aviation Safety Inspection Program
NASP	National Airspace System Plan
NASPAC	National Airspace System Performance Analysis Capability
NATCOM	National Communications Center, Kansas City, Missouri
NAVAID	Navigational Aid
NAVSTAR	Navigation System Using Timing and Ranging
NBS	National Bureau of Standards
NCU	Navigational Computer Unit
NDB	Non Directional Beacon
NDI	Nondestructive Inspection
NEPA	National Environmental Policy Act

NEXRAD	Next Generation Weather Radar
NFDC	National Flight Data Center
NFIC	National Facilities Information Systems
NGS	National Geodetic Survey
NIH	National Institutes of Health
NMCC	Network Management and Control Center
NMR	Nuclear Magnetic Resonance
NOS	National Ocean Service
NOTAM	Notice to Airmen
NPIAS	National Plan of Integrated Airport System
NPRM	Notice of Proposed Ruling
NSDD	National Security Decision Directives
NSEP	National Security Emergency Preparedness
NSL	National Simulation Laboratory
NSSF	National Airspace System Simulation Support Facility
NTSB	National Transportation Safety Board
NWS	National Weather Service
O.O.	Other Objects
OATS	Office Automation Technology System
OCAT	Oklahoma City Airport Trust
OCR	Optical Character Reader
ODAPS	Oceanic Display and Planning System
OFDPS	Offshore Flight Data Processing Systems
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
OMEGA	Very Low Frequency, Continuous Wave Radio Navigation System Operating in 10 -14 KHZ Frequency Range
OPM	Office of Personnel Management
OWCP	Occupational Workmans Compensation Program
PAM	Peripheral Adapter Module
PAMRI	PAM Replacement
PAPI	Precision Approach Path Indicator
PCB	Polychlorinated Biphenyl
PCB	Printed Circuit Board
PC&B	Personnel Compensation and Benefits
PCRM	Parallel and Converging Runway Monitors
PCS	Permanent Change-of-Station
PCS	Power Conditioning System
PD&E	Planning, Directions, Evaluations
PDME	Precision Distance Measuring Equipment
PFC	Passenger Facility Charge
PL	Public Law
PMIS	Personnel Management Information System
PMS	Performance Management System
PPI	Plan Position Indicators

PPIMS	Personal Property In-Use Management System
PRM	Precision Runway Monitors
PRMS	Performance Management and Recognition System
R&D	Research and Development
RAIL	Runway Alignment Indicator Lights
RAPCON	Radar Approach Control
RASS	Radar Analysis Software System
RBDE	Broadband Radar Remoting and Display Equipment
RCAG	Remote Center Air/Ground Communications Facility
RCE	Radio Control Equipment
RCF	Remote Communications Facility
RCL	Radio Communications Link
RCMS	Runway Configuration Management System
RCO	Remote Communications Outlet
RCOM	NAS Recovery Communications
R&D	Research and Development
REAP	Records Examination Assistance Program
R,E&D	Research, Engineering and Development
REIL	Runway End Identification Lights
RFI	Radio Frequency Interference
RFP	Request for Proposal
RML	Radar Microwave Link
RMLR	Radar Microwave Link Repeater
RMLT	Radar Microwave Link Terminal
RMM	Remote Maintenance Monitoring
RMMS	Remote Maintenance Monitoring System
RMS	Remote Monitoring Subsystem
RNAV	Area Navigation
RSPA	Research and Special Programs Administration
RTCA	Radio Technical Communication for Aeronautics
RTF	Radar Training Facility
RTR	Remote Transmitter/Receiver
RVR	Runway Visual Range
RVV	Runway Visibility Value
SAFE	Safety Activity Functional Evaluation
SAM	System for Acquisition Management
SARPS	Standards and Recommended Practices
SARTS	Stand Alone Radar Training System
SBIR	Small Business Innovative Research
SCFM	Standard Cubic Feet Per Minute
SCT	Southern California TRACON
SEI	System Engineering and Integration
SFO	Single Frequency Outlet
SIAP	Standard Instrument Approach Procedure
SIDP	Supervisory Identification and Development Program

SMP	Special Maintenance Project
SPAS	Safety Performance Analysis Subsystem
SPCC	Spill Prevention Counter Measure and Control
SRAP	Senor Receiver and Processor
SSB	Single Side Band
SSCL	System Support Computer Complex
SSR	Secondary Surveillance Radar
SSR	Solid-State Radiation
STAR	Southern California Terminal Airspace Realignment
STDM	Statistical Time Division Multiplexing
STORM	Stormscale Operation and Research Meteorology
SUA	Special Use Aircraft
SUPS	Suspected Unapproved Parts System
TAA	Terminal Advanced Automation
TAC	Technical Activities Committees
TACAN	Tactical Air Navigation
TATCA	Terminal Air Traffic Control Automation
TCA	Terminal Control Areas
TCAS	Traffic Alert and Collision Avoidance System
TCCC	Tower Control Computer Complex
TCS	Tower Communications Systems
TDLS	Tower Data Link System
TDWR	Terminal Doppler Weather Radar
TELCO	Telephone Company
TELPAK	Telephone Package
TERPS	Terminal Instrument Procedures
TM&0	Telecommunications, Management and Operations
TMS	Traffic Management System
TMU	Traffic Management Unit
TRACAB	Terminal Radar Approach Control in the Tower Cab
TRACON	Terminal Radar Approach Control
TRB	Transportation Research Board
TSC	DOT Transportation System Center
TSSC	Technical Support Services Contract
TVOR	Terminal Very High Frequency Omni- Directional Radio Range
TVSR	Terminal Voice Switch Replacement
TWA	Travelling Wave Antenna
TXP	Military Designation for a Radar Beacon Processing System
UAS	Uniform Accounting System
UHF	Ultra High Frequency
UPS	Uniform Payroll System
USAF	United States Air Force
USCG	United States Coast Guard
USD	Utilization, Screening and Disposal

VASI	Visual Approach Slope Indicator
VDP	Visual Descent Point
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOLMET	Meteorological Information for Aircraft in Flight
VOR	Very High Frequency Omnidirectional Radio Range
VORTAC	VOR Co-located and TRACON
VOT	VHF Omnidirectional Range Test
VRS	Voice Response System
VSCS	Voice Switching and Control System
WCP	Weather Communications Processor
WIGS	Within - Grade Salary Increases
WMSC	Weather Message Switching Center
WMSCR	Weather Message Switching Center Replacement
WPMS	Work Program Management system
WX	Weather

U.S. Department of
Transportation

BUDGET ESTIMATES

FISCAL YEAR 1994

FEDERAL RAILROAD ADMINISTRATION

SUBMITTED FOR USE OF
THE COMMITTEES ON APPROPRIATIONS

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FY 1994 CONGRESSIONAL SUBMISSION

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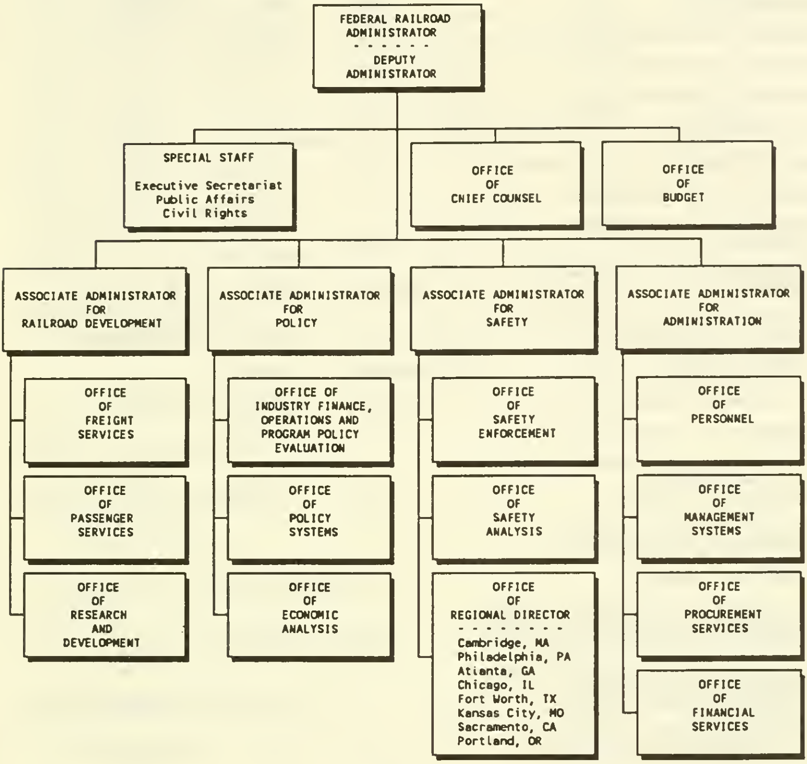
FEDERAL RAILROAD ADMINISTRATION

ORGANIZATION CHART


FEDERAL RAILROAD ADMINISTRATOR
DEPUTY ADMINISTRATOR
SPECIAL STAFF
Executive Secretariat
Public Affairs
Civil Rights
OFFICE OF CHIEF COUNSEL
OFFICE OF BUDGET
ASSOCIATE ADMINISTRATOR FOR RAILROAD DEVELOPMENT
ASSOCIATE ADMINISTRATOR FOR POLICY
ASSOCIATE ADMINISTRATOR FOR SAFETY
ASSOCIATE ADMINISTRATOR FOR ADMINISTRATION
OFFICE OF FREIGHT SERVICES
OFFICE OF PASSENGER SERVICES
OFFICE OF RESEARCH AND DEVELOPMENT
OFFICE OF INDUSTRY FINANCE, OPERATIONS AND PROGRAM POLICY EVALUATION
OFFICE OF POLICY SYSTEMS
OFFICE OF ECONOMIC ANALYSIS
OFFICE OF SAFETY ENFORCEMENT
OFFICE OF SAFETY ANALYSIS
OFFICE OF REGIONAL DIRECTOR
Cambridge, MA
Philadelphia, PA
Atlanta, GA
Chicago, IL
Fort Worth, TX
Kansas City, MO
Sacramento, CA
Portland, OR
OFFICE OF PERSONNEL
OFFICE OF MANAGEMENT SYSTEMS
OFFICE OF PROCUREMENT SERVICES
OFFICE OF FINANCIAL SERVICES

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RESOURCE SUMMARY - FINANCING
(Dollars in Thousands)

	Budget Authority		
Appropriation	1992	1993	1994 Request
Office of the Administrator	16,442	17,152	15,447 1/
Local Rail Freight Assistance	11,500	8,000	---
Freightline Rehabilitation	---	---	---
Railroad Safety	37,706	40,648	44,916
Railroad Research and Development	22,331	25,205	18,166
Conrail Labor Protection	---	---	---
Conrail Commuter Transition Assistance	13,600	7,000	---
Northeast Corridor Improvement Program	205,000	204,100	204,100
Grants to the National Railroad Passenger Corporation	506,000	496,000	633,000 2/
Mandatory Passenger Rail Service Payments	150,200	146,000	---
Subtotal, Amtrak	656,200	642,000	633,000
Amtrak (FY 1993 Stimulus)	---	187,844	---
Amtrak Corridor Improvement Loans:			
Pre-Credit Reform	---	-103	-518
Post-Credit Reform	3,500	844	---
Railroad Rehabilitation and Improvement Financing Funds:			
Pre-Credit Reform	-22,892	-7,041	-6,669
Post-Credit Reform	---	412	---
Trust Fund Share of High-Speed Ground Transportation Development (Parent account) (contract authority)	5,000	50,000	5,000
Trust Fund Share of High-Speed Ground Transportation Development (contract authority)	---	---	100,000 3/
High-Speed Ground Transportation Development (General account)	---	---	35,000 3/
Subtotal Budget Authority	**948,387**	**1,176,061**	**1,048,442**
Proprietary Receipts (User Fees)	**-31,247 4/**	**-34,701 4/**	**-37,424**
Total Budget Authority	**917,140**	**1,141,360**	**1,011,018**

1/ Program level is $18.24 million (includes $15.447 million in new budget authority and $2.793 million in FY 1993 carryover funds).
2/ Includes funds for Mandatory Passenger Rail Service Payments.
3/ Investment programs.
4/ Total FY 1992 assessment $32,080; actual collections $31,247 (as of 9/30/92). Balance of $833 included in FY 1993 estimate - $833+$33,868 (FY 93 assessment)=$34,701.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RESOURCE SUMMARY - FINANCING
(Dollars in Thousands)

	Net Obligations		
Appropriation	1992	1993	1994 Request
Office of the Administrator	18,300	26,806	18,240 3/
Local Rail Freight Assistance	11,111	10,034	---
Freightline Rehabilitation	---	---	---
Railroad Safety	37,384	40,939	44,916
Railroad Research and Development	22,798	33,297	18,166
Conrail Labor Protection	---	---	---
Conrail Commuter Transition Assistance	13,600	7,000	---
Northeast Corridor Improvement Program	210,233	221,556	204,100
Grants to the National Railroad Passenger Corporation	504,300	530,960	633,000 4/
Mandatory Passenger Rail Service Payments	150,200	146,000	---
Subtotal, Amtrak	654,500	676,960	633,000
Amtrak (FY 1993 Stimulus)	---	187,844	---
Amtrak Corridor Improvement Loans: Post-Credit Reform	3,598	3,801	---
Railroad Rehabilitation and Improvement Financing Funds:			
Pre-Credit Reform	251	---	---
Post-Credit Reform	---	723 1/	---
Trust Fund Share of High-Speed Ground Transportation Development (Parent account) (contract authority)	---	5,000 2/	5,000 2/
Trust Fund Share of High-Speed Ground Transportation Development (contract authority)	---	---	100,000 2/ 5/
High-Speed Ground Transportation Development (General account)	---	---	35,000 2/ 5/
Total Net Obligations	971,775	1,213,960	1,058,422

1/ Technical correcton to Budget Appendix summary table.
2/ Obligation limitation.
3/ Includes $2.793 million in FY 1993 carryover funds held in reserve for FY 1994.
4/ Includes funds for Mandatory Passenger Rail Service Payments.
5/ Investment programs.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RESOURCE SUMMARY - FINANCING
(Dollars in Thousands)

Appropriation	Outlays 1992	Outlays 1993	Outlays 1994 Request
Office of the Administrator	19,152	31,989	25,716
Local Rail Freight Assistance	5,698	11,268	11,266
Freightline Rehabilitation	640	---	---
Railroad Safety	37,976	37,433	45,291
Railroad Research and Development	21,470	31,280	21,326
Conrail Labor Protection	-8	---	---
Conrail Commuter Transition Assistance	7,506	3,128	19,055
Northeast Corridor Improvement Program	173,083	144,141	229,877
Grants to the National Railroad Passenger Corporation	507,967	377,703	617,397 1/
Mandatory Passenger Rail Service Payments	150,200	146,000	---
Subtotal, Amtrak	658,167	523,703	617,397
Amtrak (FY 1993 Stimulus)	---	28,177	131,491
Amtrak Corridor Improvement Loans:			
Pre-Credit Reform	---	-103	-518
Post-Credit Reform	844	844	---
Railroad Rehabilitation and Improvement:			
Pre-Credit Reform	-16,735	-6,755	-6,769
Post-Credit Reform	---	412	---
Trust Fund Share of High-Speed Ground Transportation Development (Parent account) (contract authority)	---	2,000	4,000
Trust Fund Share of High-Speed Ground Transportation Development (contract authority)	---	---	100,000 2/
High-Speed Ground Transportation Development (General account)	---	---	-73,000 2/
Subtotal Outlays	907,793	807,517	1,125,132
Proprietary Receipts (User Fees)	-31,247	-34,701	-37,424
Total Outlays	876,546	772,816	1,087,708

1/ Includes Mandatory Passenger Rail Service Payments.
2/ Reflects net outlays of $27 million for investment programs.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RESOURCE SUMMARY - STAFFING

	Positions and FTEs						
	1992		1993			1994	
			Enacted		Revised	Request	
Appropriation	Pos.	FTEs	Pos.	FTEs	FTEs	Pos.	FTEs
Office of the Administrator.......	197	179	195	184	184	195	184
Railroad Safety..................	522	475	537	512	512	566	529.5
Railroad Research and Development.	22	17	23	19.5	19.5	23	20
High-Speed Ground Transportation..	...	...	...	....	....	20	15
Subtotal, Ceiling................	741	671	755	715.5	715.5	804	748.5
Non-Ceiling......................	...	8	...	17	10	...	12
Total............................	741	679	755	732.5 (733)	725.5 (726)	804	760.5 (761)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
FY 1994 CONGRESSIONAL SUBMISSION

GENERAL STATEMENT

INTRODUCTION

The mission of the Federal Railroad Administration (FRA) is to promulgate and enforce rail safety regulations, administer financial assistance programs for certain railroads, conduct research and development in support of improved railroad safety and national rail transportation policy, manage the rehabilitation of northeast corridor rail passenger service, oversee the Alaska Railroad during the post-transfer period, consolidate government support of rail transportation activities, and facilitate the development of new and improved rail technology.

FY 1994 BUDGET POLICY

The total FY 1994 request for FRA is $1.056 billion, which includes a 10 percent increase in safety programs, continued funding for Amtrak and the Northeast Corridor programs, and an increase of $135 million for High-Speed Ground Transportation (HSGT) Research and System Development. Funding is not requested to continue the special rail improvement projects in the Local Rail Freight Assistance, Conrail Commuter Transition Assistance, Amtrak Corridor Improvement Loans, and Railroad Rehabilitation and Improvement Financing programs.

This budget is a milestone for FRA since it recognizes the magnitude of FRA's programs, the need for adequate resources, and the critical link between resources and program accomplishments. It actively supports High-Speed Ground Transportation Development, a goal incorporated in the Intermodal Surface Transportation Efficiency Act (ISTEA). Further, it provides continued support for Amtrak and the Northeast Corridor programs.

The positions and funding requested represent a heavy Federal commitment to railroad safety and new technology legislation. FRA's goals are to provide safe and efficient transportation now and provide better long-term solutions for the railroad industry and the national transportation system. FRA's FY 1994 budget request will allow these goals to be accomplished.

STAFFING

The FRA FY 1994 budget includes funding for a total of 761 FTEs (749 ceiling and 12 non-ceiling). This reflects a net increase of 35 FTEs over the FY 1993 revised level. One of the major constraints over the last several years in dealing effectively with criticism of the railroad programs has been inadequate staffing. The 35 new FTEs will allow FRA to maintain ongoing

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work, address regulatory, rulemaking and waiver backlogs, focus on other Congressional mandates and Departmental commitments, and begin a new high-speed ground transportation program.

Most of these positions are safety-related. All positions are critical and represent either a catch-up or the new HSGT program. FRA is not getting "fatter," but will get further behind if these FTEs are not approved. Further, the effect on the rail industry in terms of safety and new technology of adding these modest resources will be substantial.

FRA is requesting 1.5 FTEs for the annualization of 3 positions allowed in the FY 1993 enacted level. An additional 16.5 FTEs are requested for critical positions in the Office of Safety: 7.5 FTEs in headquarters to help carry an increase of 285 percent in regulatory workload over the past decade, and other legislative mandates; and 9 FTEs in the field to implement DOT's multi-faceted Highway-Rail Grade Crossing Initiative, FRA's Inspection, Testing and Maintenance (IT&M) Standards for 60,000 automated warning devices at highway-rail grade crossings, and FRA's Safety Training Program. The Office of Safety is also requesting 6 additional non-ceiling FTEs. These positions are filled primarily by minority students who provide computer support in the field. This increase is offset by a reduction of 4 non-ceiling FTEs in other appropriations. Also, FRA is requesting 15 FTEs for the HSGT program.

FY 1994 REQUEST HIGHLIGHTS

OFFICE OF THE ADMINISTRATOR

The FY 1994 budget of $18.2 million includes $15.4 million in new budget authority and $2.8 million in carryover funds held in reserve from FY 1993.

The total program level of $18.2 million reflects an increase of $1.1 million over the FY 1993 enacted level. The increase includes mandatory cost adjustments of $907 thousand, offset by a decrease of $520 thousand, and $701 thousand in program increases.

Funds are required for an FRA-wide computer network replacement which must be implemented in FY 1994 due to the discontinuation of vendor's services and parts in FY 1995. Additional funds are required for safety-related litigation, contract support and other programmatic support.

RAILROAD SAFETY

The FY 1994 request in Railroad Safety for $44.9 million reflects an increase of $4.3 million over the FY 1993 enacted level. The increase includes mandatory cost adjustments of $1.9 million, offset by a decrease of $153 thousand, and $2.5 million in program increases.

The staffing increases include annualization of positions authorized in FY 1993, restoration of non-ceiling FTEs reduced and reflected in the revised FY 1993 level, and additional FTEs to support rulemakings, regulatory work and other Congressional mandates.

Funds are required to continue and expand the current training program and for data management. The request includes no-year authority for the Data Management subprogram.

It is estimated that a total of $37.4 million will be collected through user fees in FY 1994.

RAILROAD RESEARCH AND DEVELOPMENT (R&D)

The FY 1994 request of $18.4 million represents a decrease of $7 million from the FY 1993 enacted level.

The total request includes mandatory cost adjustments of $149 thousand, offset by a decrease of $72 thousand, and an increase of $1.4 million for new projects, offset by non-recurring costs of $8.5 million. Most of these non-recurring costs are related to the establishment of a new HSGT Development program as proposed in a separate appropriation.

The work performed under R&D's budget activity entitled "Maglev and High-Speed Rail" in FY 1993 is proposed to be funded in two program areas: "Safety of High-Speed Rail" - a new budget activity in the R&D appropriation - and in the new HSGT investment program.

NORTHEAST CORRIDOR IMPROVEMENT PROGRAM (NECIP)

The FY 1994 request for NECIP of $204.1 million reflects no change from the FY 1993 enacted level and will continue the work of rehabilitating and upgrading the corridor between Washington, D.C. and Boston, Massachusetts.

AMTRAK

The FY 1994 request of $633 million is comprised of $468 million for operating grants (including mandatory passenger rail service payments) and $165 million for capital grants. The $9 million decrease from the FY 1993 enacted level reflects an expected drop in mandatory payments in FY 1994.

HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

The FY 1994 request of $140 million includes a new investment program of $135 million and will be funded by $105 million from the Highway Trust Fund and $35 million from the general fund.

The funds will provide a comprehensive program to expand high-speed ground transportation in the United States. Funds will be used to develop new technology, including the first phase of a maglev prototype program, and to provide financial assistance to high-speed rail in major intercity corridors.

Authorizing language is required to establish the program and to authorize use of the Trust Fund for purposes cited above, including expanded use of Trust Fund amounts now authorized solely for Maglev.

General

The FRA FY 1994 request includes $1.598 million for payments to the Working Capital Fund.

More detailed information on requested increases is contained in the following justifications.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

For necessary expenses of the Federal Railroad Administration, not otherwise provided for, [$17,152,000] $15,447,000, of which [$2,345,000] $2,485,000 shall remain available until expended: **Provided**, That none of the funds in this Act shall be available for the planning or execution of a program making commitments to guarantee new loans under the Emergency Rail Services Act of 1970, as amended, and that no new commitments to guarantee loans under section 211(a) or 211(h) of the Regional Rail Reorganization Act of 1973, as amended, shall be made: **Provided further**, That, as part of the Washington Union Station transaction in which the Secretary assumed the first deed of trust on the property and, where the Union Station Redevelopment Corporation or any successor is obligated to make payments on such deed of trust on the Secretary's behalf, including payments on and after September 30, 1988, the Secretary is authorized to receive such payments directly from the Union Station Redevelopment Corporation, credit them to the appropriation charged for the first deed of trust, and make payments on the first deed of trust with those funds: **Provided further**, That such additional sums as may be necessary for payment on the first deed of trust may be advanced by the Administrator from unobligated balances available to the Federal Railroad Administration, to be reimbursed from payments received from the Union Station Redevelopment Corporation. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

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DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0700-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
Program by activities:				
	Direct program:			
00.01	Salaries and expenses	14,140	14,807	15,755
00.02	Contract support	798	1,358	645
00.03	Washington Union Station	709	710	...
00.04	Local Rail Service Assistance	1,810	7,261	...
00.05	Alaska Railroad Liabilities	843	2,670	1,840
00.91	Total, direct program	18,300	26,806	18,240
01.01	Reimbursable program	265	162	138
10.00	Total obligations	18,565	26,968	18,378
Financing:				
17.00	Recovery of prior year obligations	-1,273	...	...
21.40	Unobligated balance available, start of year	-13,183	-12,447	-2,793
24.40	Unobligated balance available, end of year	12,447	2,793	...
25.00	Unobligated balance expiring	126	...	...
39.00	Budget authority (gross)	16,682	17,314	15,585
Budget authority:				
	Current:			
40.00	Appropriation	16,442	17,152	15,447
	Permanent:			
68.00	Spending authority from offsetting collections	240	162	138

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0700-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Relation of obligations to outlays:			
71.00 Total obligations	18,565	26,968	18,378
72.40 Obligated balance, start of year	20,957	18,370	13,187
74.40 Obligated balance, end of year	-18,370	-13,187	-5,711
77.00 Adjustments in expired accounts	-486	...	...
78.00 Adjustments in unexpired accounts	-1,273	...	...
87.00 Outlays (gross)	19,392	32,151	25,854
Adjustments to budget authority and outlays:			
Deductions for offsetting collections:			
88.00 Federal funds	-240	-162	-138
89.00 Budget authority (net)	16,442	17,152	15,447
90.00 Outlays (net)	19,152	31,989	25,716

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

PERSONNEL SUMMARY

Identification Code 69-0700-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct:			
Total compensable workyears:			
Full-time equivalent employment	181	187	184
Full-time equivalent of overtime and holiday hours	1	0	0
Reimbursable:			
Total compensable workyears:			
Full-time equivalent employment	2	0	0

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

PROGRAM AND PERFORMANCE

The Office of the Administrator's (OA) authorization is contained in the Department of Transportation Act, Public Law No. 88-670. The programs under this account are grouped under four major activities as follows:

SALARIES AND EXPENSES - Provides the administrative and policy support for all Federal Railroad Administration activities and the technical support for the passenger and freight programs. Includes the Immediate Office of the Administrator, the Executive Secretariat, the Offices of Civil Rights, Public Affairs, Budget, Chief Counsel, Policy, Passenger and Freight, and Administration (accounting, personnel, procurement and management systems).

CONTRACT SUPPORT - Provides support for policy oriented economic, industry, and systems analysis.

WASHINGTON UNION STATION - The Department of Transportation purchased Washington Union Station on November 1, 1988. Receipts are estimated to cover the mortgage payment in 1994.

ALASKA RAILROAD LIABILITIES - Provides reimbursement to the Department of Labor for compensation payments to former Federal employees of the Alaska Railroad who were on the rolls during the period of Federal ownership and support for clean-up activities at hazardous waste sites located at properties once owned by the FRA.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscre-tionary Chgs	FY 1994 New/Expanded Programs	FY 1994 Request
Salaries and Expenses	$ 14,140	$ 14,807	$ 547	$ 401	$ 15,755
Washington Union Station	709	0	0	0	0
Contract Support	798	375	(30)	300	645
Local Rail Service Assistance	1,810	0	0	0	0
Alaska Railroad Liabilities	843	1,970	(130)	0	1,840
TOTAL - OFFICE OF ADMINISTRATOR	$ 18,300	$ 17,152	$ 387	$ 701	$ 18,240

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	Salaries & Expenses	Contract Support	Alaska RR Liabilities	Appropriation Total
FY 1993 BASE	$14,807	$375	$1,970	$17,152
NONDISCRETIONARY CHANGES:				
Comparability pay increase FY 1993	113			113
Within-grade and merit pay increases	75			75
Other pay-related costs	212			212
Other benefits	51		70	121
Working capital fund payments	110			110
Inflation/Vendor increases	276			276
Non-recurring costs	(290)	(30)	(200)	(520)
SUBTOTAL - NONDISCRETIONARY CHANGES	547	(30)	(130)	387
NEW OR EXPANDED PROGRAMS:				
Network replacement	234	50		284
Programmatic support	117			117
Court Reporter for Chief Counsel	50			50
Economic analysis		5		5
Industry analysis		82		82
Systems analysis		163		163
SUBTOTAL - NEW OR EXPANDED PROGRAMS	401	300	0	701
TOTAL ADJUSTMENTS to FY 1993 BASE	948	270	(130)	1,008
TOTAL FY 1994 REQUEST - OA	$15,755	$645	$1,840	$18,240

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OFFICE OF THE ADMINISTRATOR

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0700-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full-time permanent	9,008	10,220	10,579
11.3	Other than full-time permanent	207	198	152
11.5	Other personnel compensation	274	244	268
11.9	Total personnel compensation	9,489	10,662	10,999
12.1	Civilian personnel benefits	2,404	2,522	2,691
21.0	Travel and transportation of persons	340	268	307
22.0	Transportation of things	1	...	...
23.3	Communications, utilities, and miscellaneous charges	25	31	31
25.1	Consulting services	50	45	80
25.2	Other services	3,421	6,963	3,733
26.0	Supplies and materials	192	115	159
31.0	Equipment	568	54	240
41.0	Grants, subsidies, and contributions	1,810	6,146	...
99.0	**Subtotal, direct obligations**	**18,300**	**26,806**	**18,240**
99.0	**Reimbursable obligations**	265	162	138
99.9	**Total obligations**	**18,565**	**26,968**	**18,378**

FY 1994 REQUEST HIGHLIGHTS

An appropriation of $15.447 million is requested for the Office of the Administrator in FY 1994, a decrease of $1.7 million from the FY 1993 enacted level. The appropriation will be supplemented by $2.793 million in carry-over funds held in reserve from FY 1993, for a total direct program level of $18.24 million. This reflects an increase of $1.1 million over the FY 1993 enacted level.

An increase of $907 thousand is associated with items such as annualization of the FY 1993 pay raise, merit pay and within-grade increases, and inflation or outside vendor increases.

The program increase of $701 thousand is required for the FRA-wide computer network replacement, contract support, court reporter services and other programmatic support.

These increases are offset by a decrease of $520 thousand in non-recurring costs, for a net increase of $1.1 million.

The following outlines FRA's specific request by the three major activities:

BUDGET ACTIVITY - SALARIES AND EXPENSES
Total Increase in Budget Authority **$948,000**

NON-DISCRETIONARY INCREASES **$547,000**

The increases include costs for annualization of the FY 1993 pay raise; normal within-grade and merit pay increases; FICA/ medicare payments; health insurance premiums; inflation or increased vendor costs; and increased WCF and common services costs. These increases are offset by decreases in one-time contracts and equipment, for a net increase of $547 thousand.

NEW OR EXPANDED PROGRAMS **$401,000**

NETWORK REPLACEMENT **($234,000)**

The Federal Railroad Administration (FRA) has in place Local Area Network (LAN) which supports programs and initiatives throughout FRA. Almost all users in the FRA headquarters use the network to collect, process, and disseminate information essential to the FRA mission. Employees in Regions IV and V also use the network for these purposes.

In FY 1985, FRA solicited the services of the General Services Administration's Federal Office Automation Center in planning and developing requirements for a system that would better meet FRA's needs. In FY 1987, FRA issued a request for proposal to competitively select an office automation system. The network perating system subsequently selected was from the 3COM Corporation.

In FY 1990, the 3Com Corporation announced that it will no longer continue with the development of network operating system software for its systems. FRA will be required to move to another network platform and replace some network hardware and software components. FRA faces a potential shutdown of the agency computer system if the file servers are not replaced.

3Com will continue to support its products for five years from the date of its announcement. However, at the end of the five years, 3Com's parts and services will diminish. Therefore, FRA must take action by FY 1994 to replace the file servers and network operating system software to ensure an operating system in FY 1995 - the year 3COM stops support for their system.

It is essential that the FRA replace the 3Com local area network. The cost to repair and maintain the current network would be significantly greater than the cost to replace it. The current system barely supports the releases of old software used by FRA and the poor system response and lock-ups will increase as FRA moves to newer versions of the software. Since FRA relies heavily on the network for processing and disseminating information in the Headquarters Office, poor system response and system lock-ups affect user productivity throughout these offices.

Failure to move to another LAN will limit FRA's ability to select and use newer software packages being considered to enhance FRA's programs because they will not work with the old 3Com operating system. FRA will also be limited in the ability to adopt new technologies (i.e., image processing, electronic filing, electronic form processing, etc.)

FRA uses computers and the network to support its mission in a productive manner. Therefore, it cannot be locked into old technology which limits the ability to use state-of-the-art resources and take innovative approaches in addressing ongoing and new requirements. As FRA moves toward linking the networks with those of the Department for the purpose of improving the ability to share resources and exchange information, FRA will need to have a system in place which can access and use hardware and software products that are comparable to the other DOT modes.

As FRA's ability to rely on network support from 3Com diminishes, parts and support services will become more difficult to obtain. This will result in longer periods of down time when a failure occurs, thereby reducing the availability of the system to the users for productive work. Failure to take appropriate action in FY 1994 could result in serious disruptions in FRA operations in FY 1995 and beyond.

Of the $234,000 requested, $140,000 is required for the purchase of nine file servers and related network cards needed to replace the existing Local Area Network platform since the current network operating system and servers will no longer be maintained by the vendor after FY 1994. Also, $33,000 is required to cover the cost of replacing the current network operating system software and $61,000 is needed for installation costs of the file servers and system software.

COURT REPORTER SERVICES **($50,000)**

The increase is requested to cover the increased usage of court reporters resulting from the growth in FRA's administrative litigation workload and the hearings associated with the large number of statutorily mandated rulemakings.

FRA's administrative adjudication has three main sources: the new engineer qualifications program, hazardous materials enforcement, and disqualification of individuals from safety-sensitive service. In all three areas, FRA's regulations, based on the enabling statutes, provide the opportunity for trial-type hearings to those who wish to challenge FRA's position. Such hearings simply must be transcribed as a reviewing court would look to the record made before the agency in deciding any judicial challenge to FRA's action.

FRA's fundamental source of authority is the Federal Railroad Safety Act of 1970, 45 U.S.C. Section 421 et seq. That statute requires that FRA provide an opportunity for a hearing when it proposes any substantive rule or is considering a petition to grant a waiver from an existing rule. Without such hearings, FRA would not be authorized to take necessary actions in the rulemaking area, many of which are required by statute.

FRA has conservatively estimated the funds necessary to obtain the necessary transcription services. If funding is not available for this purpose, serious problems will be created for FRA's enforcement and regulatory programs. For example, FRA may have to drop certain meritorious enforcement cases and/or postpone various rulemaking proceedings beyond their statutory deadlines.

The cost of these services has continually risen each year as the administrative litigation workload has increased. In FY 1993, this cost has already exceeded the amount allocated in the Office of Chief Counsel's enacted level. These costs are expected to continue to increase in FY 1994, well beyond the point where they can merely be absorbed in an already limited budget request.

PROGRAMMATIC SUPPORT **($117,000)**

As the size and complexity of FRA's programs and staff grow, so does the programmatic support. The impact of this growth has been especially hard on the Office of the Administrator (OA) offices. These offices must maintain the pace of operations, often without additional staff or resources. Since the OA activity budgets are small and comprised primarily of salary and expense costs, the OA does not have the flexibility to absorb the additional support costs associated with the larger programs. Therefore, it is necessary to request $117,000 in FY 1994 just to stay even with FRA's new requirements. FRA fully appreciates that this is not a good year to ask for increases. However, the scope of work put on the OA's shoulders is increasing and if funding is not provided, OA will be forced to curtail its support services, resulting in costly delays in the program areas. Examples of this program support include travel ($67,000) and supplies and equipment ($50,000). OA travel costs are increasing due to the following:

- Safety Program - The Office of Chief Counsel is now scheduling civil penalty settlement conferences on a semiannual basis, attending more hearings due to waiver petitions and signal applications, and participating in more safety litigation as a result of increased rulemakings and engineer qualifications petitions. Any curtailment in these areas will produce new backlogs and loss of millions of dollars.

- High-Speed Ground Transportation - Because of the Administration's high-speed ground transportation program initiatives, visits with government officials are required to discuss potential high-speed rail corridors, high-speed rail technology, and related safety issues and regulations. This travel is beyond the normal travel requirement and is in addition to the program travel under HSGT Development request. Curtailment in this area will slow negotiations between the Federal and state and local governments and impede policy decisions within DOT.

- Intermodalism - FRA is involved in ISTEA implementation and related intermodal efforts. FRA is required to attend conferences, hearings and seminars on these issues. Without adequate travel funds, FRA will not be able to ensure that rail transportation is considered as state and local planners carry out their planning process.

  In addition, FRA expects that the rail and truck standards harmonization negotiations mandated by the North American Free Trade Agreement will be underway in FY 1994. FRA is a key member of the North American Free Trade Agreement negotiating group and OA's travel budget must allow full participation in these tri-lateral sessions between the U.S.-Canada-Mexico. The U.S. railroad industry's operations and its competitive position with regard to motor carriers could be jeopardized without FRA participation.

- Legislative and Union Mandates - Due to legislation such as FMFIA, Paperwork Reduction Act, CFO, alcohol testing, etc., additional program, system, management and ADP reviews are required. Regional and field offices must be included in these reviews, thus increasing travel costs. Failure to comply with these laws will result in IG and congressional investigations.

All professional and non-professional FRA employees nationwide, excluding managers, supervisors and employees engaged in some personnel work, are covered by a union contract. FRA's current union contract expires at the end of FY 1993. Additional travel will be required to support new labor negotiations, labor management committee meetings, employee and labor relations, and a task force on Alternative Work Schedules. Renewal of this contract is mandatory and critical to FRA's operations. This cost cannot be curtailed or deferred into the future.

Supplies and equipment costs are increasing due to the increased number and usage of PCs, fax machines and copying machines. This equipment has saved FRA thousands of dollars in contract and personnel costs and actually has made it possible to handle the increase in workload without a comparable increase in staffing. For example, in the Office of Chief Counsel, the use of PC's and integrated software has contributed significantly to the alleviation of the backlog. Further, items such as expanding wallets for office files have allowed several offices to expand without requiring additional space. These supplies and equipment are basic tools for day-to-day operations. The OA offices cannot survive without these purchases and/or replacements.

It should be noted that the FY 1994 request for travel, supplies and equipment is well below the FY 1992 actual obligations in these areas, indicating that FRA is maximizing every dollar and efficiently controlling in-house resources.

BUDGET ACTIVITY - CONTRACT SUPPORT
Total Increase in Budget Authority $270,000

NON-DISCRETIONARY DECREASES -$30,000

The decrease reflects nonrecurring one-time contract costs of $30,000 in FY 1994.

NEW OR EXPANDED PROGRAMS $300,000

NETWORK REPLACEMENT ($50,000)

This request relates to the Network Replacement increase presented under the "Salaries and Expenses" budget activity and is part of the FRA-wide computer replacement project.

ECONOMIC ANALYSIS ($5,000)

Data Resources Incorporated (DRI)-Proprietary Model Access

The funding increment requested will permit FRA to provide its total share of $80,000 for renewal of this contract. The FRA requires continued access to the proprietary models, publications and databases provided by DRI. In its efforts to meet these requirements in the most cost-effective manner, FRA has joined with MARAD, FAA and NHTSA in acquiring these services. The models provide short-term economic forecasts, by commodity and geographic area. They are necessary inputs into FRA analyses of regulations, strike impacts, and the preparation of Departmental filings before the Interstate Commerce Commission (ICC) with regard to railroad mergers, rate exemption proceedings, abandonments and other economic matters.

INDUSTRY ANALYSIS **($82,000)**

Technology Impacts on Railroad Intermodal Service ($50,000)

Concerns about highway congestion, air quality and petroleum dependency have sparked interest in placing a greater reliance on rail transportation to move the country's freight. However, currently there is little rail presence in hauls of less than 500 miles, which accounts for an estimated 83 percent of intercity truck traffic. Innovative rail intermodal services such as double-stack container trains are growing rapidly, but largely have been designed to serve long-haul high density markets. This study is designed to assess the potential for similar breakthroughs in shorter-haul markets. The research will allow FRA to analyze the practical possibilities for new technologies to provide cost-effective service in these markets, and develop estimates of the associated effects on congestion, air quality and energy efficiency. There is a need for such studies, particularly to assist States and Metropolitan Planning Organizations as they develop ISTEA-required freight transportation plans and set priorities for project funding.

Proprietary Railroad Data Base Information and Publications Produced by the Association of American Railroads and Nexis/ Lexis Information ($32,000)

The Association of American Railroads (AAR) is uniquely positioned to provide this information since it represents Class I railroads which, in total, comprise about 95 percent of all operating revenues earned by United States railroads. As part of its mission, the AAR maintains a wide variety of financial, operating, and economic performance information of the Class I members, and also on the more than 500 operating freight railroads in the United States not classified as Class I (i.e., shortline and regional railroads). FRA has become more dependent upon the AAR for information that permit maintenance of key data bases. The data bases permit FRA to meet statutory requirements concerning the finances, operations and condition of plant for the railroad industry, including local and regional railroads. This information cannot be collected by any other known entity as expeditiously and accurately, or for less than the projected cost of this contract.

SYSTEMS ANALYSIS ($163,000)

ICC Waybill Processing ($9,000)

The Carload Waybill Sample is a proprietary sample of freight waybills submitted by railroads to the Interstate Commerce Commission. It is the only source of railroad freight movements showing origination and termination points, participating railroads, interchange locations, commodities and volume. FRA cost shares the collection of this information with the Interstate Commerce Commission. This increment of $9,000 will permit FRA to provide a total of $190,000 as its share towards the collection of these data.

The Carload Waybill Sample and the products derived from it are widely used by FRA and other US DOT elements, including RSPA and FHWA, and by ICC, FEMA, DOD, Department of Agriculture, State and local governments and the public. FRA will make the following applications of the Carload Waybill Sample, all of which are critical to accomplishment of the missions and functions of this agency:

PRODUCT NAME	REQUIRING AGENCY
FRA's National Inspection Plan	FRA
Flow of Hazardous Materials	FRA; RSPA
Costing Railroad Shipments	FRA; ICC
Defense Essential Rail Network	FRA; DOD/MTMC; FEMA
ISTEA Implementation	FRA; OST
NAFTA	FRA; OST; Dept. of State
U.S. Canada Free Trade Agreement	FRA; OST; USDA; Dept. of State
Mergers and Acquisitions	FRA; OST; ICC
Port Access	FRA; MARAD; FHWA
Rate Exemptions	FRA; OST; ICC
Intercity Passenger Corridors	FRA; OST; FHWA; Corps of Engineers
Emergency Response	FRA; RSPA; FEMA; States and local governments

U.S. Rail Intermodal Network ($50,000)

The Intermodal Network is a detailed 1:100,000 Geographic Information System (GIS) that will interface with a similar network of the same scale being developed intermodally by FHWA and MARAD. When FRA, MARAD and FHWA complete their respective developments, DOT will for the first time have an accurate GIS that includes the entire surface transportation infrastructure of the entire U.S. at "street level" detail. Such a network is essential for intermodal planning and operations, for emergency response to accidents and natural disasters, and for national defense purposes.

Enhancement of Analytical Tools - Development of Analytical Tools for Dealing with Grade Crossing Problems ($100,000)

The objective of this effort is to improve the ability of State and local governments, as well as FRA field staff to analyze and solve grade crossing problems, a cause of more than 600 deaths per year. This will be done through the development of computer software and related data bases that can be made available to state and local government staffs for use on personal computers. Specifically, four tools will be developed: (1) A revised grade crossing inventory program used by States and railroads to update the grade crossing inventory; (2) An enhanced procedure to apportion a known budget to specific grade crossings improvements; (3) An existing grade crossing inventory demonstration program modification to incorporate users' comments; and (4) An efficient procedure to process and respond to public inquiries concerning accidents and grade crossings.

Network Operations and Maintenance ($4,000)

An increase in funding is needed for software improvements, such as the new Wordperfect upgrade package, in the Policy Office. Also included are increases for hardware maintenance costs, resulting from the addition of new network printers, a bridge/router and other network peripherals. Maintenance needs will become more critical for applications of GIS mapping and policy-based computer modeling of rail/road costs.

BUDGET ACTIVITY - ALASKA RAILROAD LIABILITIES
Total Decrease in Budget Authority -$130,000

NON-DISCRETIONARY DECREASES **-$130,000**

The FY 1994 request reflects a total requirement of $840 thousand for reimbursement to the Department of Labor (DOL) for actual Alaska Railroad Workers' Compensation payments made during the billing period of July 1, 1991 to June 30, 1992. This is an increase of $70 thousand over the FY 1993 billing of $770 thousand.

The funding level requested for Alaska Railroad clean-up activities reflects a decrease of $200 thousand from the FY 1993 enacted level. This decrease is due to a delay in implementing clean-up activities as a result of FRA pursuing other responsible parties.

FY 1992 ACCOMPLISHMENTS

- Assessed approximately $28 million in proposed civil penalties during fiscal year 1992 (compared to FRA's annual average assessment total of $5.8 million during the 1980s), and collected approximately $16.7 million in civil penalties (the highest total in FRA history) for violations of the rail safety laws.

- Eliminated a backlog of untransmitted violation reports more than one year old. By July 1, 1992 no reports older than six months remained to be transmitted.

- Issued one Disqualification Order and two Notices of Proposed Disqualification against individuals, proposed civil penalties in two cases, collected one civil penalty against an individual, and issued one warning letter.

- Issued two emergency orders concerning hazardous materials tank cars. Emergency Order No. 16 addressed the hazards of dual diameter tank cars, which had begun to show signs of extremely dangerous defects. Emergency Order No. 17 involved a similarly dangerous situation with regard to stub sill tank cars.

- Issued FRA's first-ever compliance order in a matter concerning rampant noncompliance with the safety laws by a small Texas railroad.

- Issued in the rulemaking area:

  - a final rule implementing the railroad user fee program through which railroads reimburse FRA's costs incurred in implementing the Federal Railroad Safety Act of 1970;

  - a proposed rule on blue signal protection for utility employees; and

  - a final rule to add State hazardous materials inspectors to the existing state participation program.

- Placed an FRA safety attorney in a regional office to determine the benefits from such collocation, in terms of both enforcement work and general legal guidance.

- Initiated use of a sophisticated Oracle-based enforcement case generation and reporting system.

- Rebuffed successfully a challenge to FRA's safety jurisdiction over an intrastate tourist railroad in Arkansas.

- Defended a suit brought in District Court in St. Louis challenging the legality of FRA's engineer qualification rules.

- Provided assistance to Amtrak, including the transfer of $204 million for Northeast Corridor Improvement Project activities, $4.4 million for repair of the Hell Gate Viaduct in New York, and $392 thousand for a study of elderly and handicapped access improvements that could be made to Amtrak's equipment and facilities.

- Worked with the Solicitor General's Office in securing a Supreme Court victory in National Railroad Passenger Corp. v. Boston & Maine Corp. The ruling affirms Amtrak's right to elect either to seek trackage rights or to obtain conveyance of a rail line if needed for Amtrak service. This provides critical leverage for Amtrak in bargaining with the host freight railroads.

- Negotiated an agreement with the Southeastern Pennsylvania Transportation Authority which provided for the transfer of $13.6 million to SEPTA to be used for bridge repairs on facilities transferred to SEPTA by Conrail.

- Worked with the Department of Justice and the Environmental Protection Agency on a cost sharing agreement through which potentially responsible parties will share the cost of a Remedial Investigation/Feasibility Study for the Standard Steel Superfund Site in Anchorage, Alaska.

- Completed a review of reemployment rights held by FRA safety program employees in terms of the potential conflicts of interest. All employees who had not done so voluntarily were directed to divest their reemployment rights.

- Negotiated an agreement with SPCSL Corp. providing a $3.5 million loan for the rehabilitation of the track between Joliet and Granite City, Illinois to help maintain Amtrak service on the line.

- Completed a restructuring of FRA security interests in the Bloomer Railway Shippers Redevelopment League and the New York, Susquehanna and Western Railroad that allowed each railroad to substitute newly acquired property as security for FRA's interests in the railroads.

- Worked closely with the Department of Justice in developing the government's strategy in support of DOT's claim in the Delaware & Hudson Railway Company's reorganization through which the United States received $2 million in cash while retaining a major interest in a remaining antitrust action against Conrail.

- Worked with the Department of Defense on terminating the contract for concept development and engineering testing of the Rail Garrison basing mode for the "Peacekeeper" intercontinental ballistic missile.

- Drafted a uniform grant agreement format for grants under the Intermodal Surface Transportation Efficiency Act of 1991.

- Achieved a virtually complete victory in the litigation of the case of United States v. Wilbur Smith and Associates, a complex design-defects case against the architect-engineer of the Stamford Station involving an approximately $11 million dollar claim by the United States.

- Participated in the successful mediation of the last remaining claim arising out of the Washington Union Station restoration work. Following a three-day mediation, Park Woodworking's claim for $1,369,725, plus interest and attorneys fees, was settled at a cost of $200,000.

- Negotiated an agreement with the French Republic concerning very high-speed rail system safety research and provided written guidance, acceptable to the French Government, in its implementation.

- Completed a study entitled "Effects of Disclosure Requirements on Railroad Grain Transportation Contracts" that examined how Congressionally mandated disclosure requirements for these commodities affects contracting between railroads, shippers, and receivers.

- Prepared a Congressionally mandated report that determined the need and demand by Class II and Class III railroads for Federal loan guarantees of obligations as provided in Section 511 of the Railroad Revitalization and Regulatory Reform Act of 1976. The study was mandated in the Amtrak Reauthorization and Improvement Act of 1990 (Pub. L. No. 101-322, July 6, 1990).

- Funded an interagency task force and monitored a Bureau of the Census feasibility study to develop procedures to identify, by surface mode share, U.S. import and export traffic to and from Mexico and Canada. The study, to be completed in FY 1993, will allow DOT and Census to determine if these data can be generated annually.

- Completed a study of the impacts that longer combination trucks will have on highways, shippers, and railroads. The study was sponsored by FRA, FHWA and the OST Office of Policy and International Affairs.

- Participated in the DOT/Census group preparing for the 1993 Commodity Flow Survey. The survey will be the first updating of national freight transportation flows since 1977.

- Participated in the U.S.-Mexico Working Group on Border Transportation, seeking ways to solve passenger and freight transportation problems between the two countries.

- Prepared the railroad chapter for the U.S. Department of Commerce 1993 Industrial Outlook.

- Participated as a Departmental liaison to the American Association of State Highway and Transportation Officials Committee, developing recommendations for a national multimodal freight transportation policy.

- Participated in the Binational Committee on Bridges and Border Crossings and will fund a portion of a feasibility study on developing the new border crossing at Santa Teresa, New Mexico into an extensive intermodal transportation facility.

- Prepared the first Annual Report to Congress on Rail Safety Transportation User Fees.

- Provided technical assistance to the Government of Argentina in support of that country's program to privatize its rail system.

- Completed a contract to produce a "Curriculum of Study For Professional Practitioners of U.S. Railroad Employee Assistance Programs" and set up a delivery system to provide for national coverage of Railroad EAP Counselors and EAP Service Providers for smaller railroads.

- Presented an article for publication before an International Symposium on Alcohol, Drugs and Transportation entitled "Substance Abuse Countermeasures for the Railroad Industry."

- Co-sponsored the World Railways Congress 1991, together with the World Bank and several U.S. and international railroad associations. The topic concerned railway privatization and attracted Ministerial and senior-level transportation and railway officials from 55 countries.

- Represented the U.S. Department of Transportation at the European Conference of the Ministers of Transportation.

- Completed technical assistance and contract performance successfully in support of the Air Force Peacekeeper Rail Garrison Program.

- Developed and implemented, pursuant to U.S.-Canada emergency coordination agreements, a Memorandum of Understanding with Transport Canada governing cross-border cooperation in times of emergency or natural disaster, including a joint determination of key rail crossing points.
- Implemented a Management Information and a Management By Objectives System to disseminate information throughout FRA concerning FRA activities.
- Implemented a prototype system to provide FRA's Region IV (Chicago) access to the FRA Headquarters local area network for the purpose of expediting the exchange of information between Headquarters and the region and field offices. (If the prototype project is successful, access may be extended to all FRA region and field offices.)
- Implemented automated systems for capturing, editing, and reporting data for the FRA Bridge Inspection Program.
- Assessed Geographic Information Systems to be used to enhance FRA's analyses and reporting of railroad safety inspection information.
- Convened and successfully facilitated the Alternative Work Schedule (AWS) Task Force comprised of representatives from management and the American Federation of Government Employees, Local 2814. (Prepared a position paper on AWS and the FRA Administrator approved the concept of AWS. A draft AWS directive has been sent to the program office for review.)
- Developed and issued solicitation for a new 10-year contract with the Association of American Railroads for the care, custody and control of the Transportation Test Center in Pueblo, Colorado.
- Published a work force diversity newsletter to help prepare managers and supervisors for the impact of expected personnel changes by the year 2000.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

[LOCAL RAIL FREIGHT ASSISTANCE]

[For necessary expenses for rail assistance under section 5(q) of the Department of Transportation Act, as amended, $8,000,000, to remain available until expended.] (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

LOCAL RAIL FREIGHT ASSISTANCE

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0714-0-1-401	1991 Actual	1992 Estimate	1993 Estimate
Program by activities:			
10.00 Total obligations (object class 41.0)	11,111	10,034	...
Financing:			
17.00 Recovery of prior year obligations..	-4	...	...
21.40 Unobligated balance available, start of year..........................	-1,641	-2,034	...
24.40 Unobligated balance available, end of year..........................	2,034	...	...
40.00 Budget authority (appropriation)	11,500	8,000	...
Relation of obligations to outlays:			
71.00 Total obligations..................	11,111	10,043	...
72.40 Obligated balance, start of year....	12,725	18,135	16,901
74.40 Obligated balance, end of year......	-18,135	-16,901	-5,635
78.00 Adjustments in unexpired accounts...	-4	...	...
90.00 Outlays............................	5,698	11,268	11,266

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

LOCAL RAIL FREIGHT ASSISTANCE

PROGRAM AND PERFORMANCE

This program provides discretionary and non-discretionary grants to all States for rail planning and acquisition, track rehabilitation, and rail facility construction with respect to light density freight lines. The name was changed in 1991 from "Local Rail Service Assistance" to "Local Rail Freight Assistance." No funds are requested for this account in 1994.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

LOCAL RAIL FREIGHT ASSISTANCE

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0714-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
41.0	Grants, subsidies, and contributions	11,111	10,034	...
99.9	**Total obligations**	**11,111**	**10,034**	**...**

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FREIGHTLINE REHABILITATION

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0713-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Relation of obligations to outlays:			
71.00 Total obligations..................	...	...	...
72.40 Obligated balance, start of year....	640	...	...
90.00 Outlays...........................	640	...	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FREIGHTLINE REHABILITATION

PROGRAM AND PERFORMANCE

In 1989, funds were provided for a grant to the Soo Line Railroad Company for track improvements to maintain Amtrak's rail passenger service in Wisconsin. No funds are requested in 1994.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

For necessary expenses in connection with railroad safety, not otherwise provided for, [$40,648,000] $44,916,000, of which [$1,335,000] $2,911,000 shall remain available until expended: **Provided**, That there may be credited to this appropriation funds received from non-Federal sources for expenses incurred in training safety employees of private industry, State and local authorities, or other public authorities other than State rail safety inspectors participating in training pursuant to section 206 of the Federal Railroad Safety Act of 1970. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0702-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
Direct program:			
00.01 Federal enforcement................	29,357	31,534	34,125
00.02 Automated track inspection program.	1,083	1,626	1,357
00.03 Safety regulation and program administration..................	6,944	7,779	9,434
00.91 Total direct program............	37,384	40,939	44,916
01.01 Reimbursable program...............	8	...	...
10.00 Total obligations................	37,392	40,939	44,916
Financing:			
17.00 Recovery of prior year obligations.	-127	...	...
21.40 Unobligated balance available, start of year....................	-27	-291	...
24.40 Unobligated balance available, end of year..........................	291	...	...
25.00 Unobligated balance expiring.......	185	...	...
39.00 Budget authority (gross)	37,714	40,648	44,916
Budget authority:			
Current:			
40.00 Appropriation......................	37,706	40,648	44,916
Permanent:			
68.00 Spending authority from offsetting collections.....................	8	...	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0702-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Relation of obligations to outlays:			
71.00 Total obligations	37,392	40,939	44,916
72.40 Obligated balance, start of year	6,729	5,852	9,358
74.40 Obligated balance, end of year	-5,852	-9,358	-8,983
77.00 Adjustments in expired accounts	-158	...	...
78.00 Adjustments in unexpired accounts	-127	...	...
87.00 Outlays (gross)	37,984	37,433	45,291
Adjustments to budget authority and outlays:			
Deductions for offsetting collections:			
88.00 Federal funds	-8	...	...
89.00 Budget authority (net)	37,706	40,648	44,916
90.00 Outlays (net)	37,976	37,433	45,291

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

PERSONNEL SUMMARY

Identification Code 69-0702-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Total compensable workyears:			
Full-time equivalent employment	481	518	542
Full-time equivalent of overtime and holiday hours	5	5	5

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

Program and Performance

The Federal role in the Railroad Safety program is to protect railroad employees and the public by ensuring the safe operation of passenger and freight trains. The authority to accomplish this role is found in the Federal Railroad Safety Act of 1970 (as amended), the Department of Transportation Act, the Hazardous Materials Act, the Rail Safety Improvement Act of 1988, the Hazardous Materials Transportation Uniform Safety Act of 1990, and the Sanitary Food Act of 1990.

The programs of the Railroad Safety appropriation are grouped under three major activities as follows:

FEDERAL ENFORCEMENT	-	Provides support for the field staff of safety inspectors and clerical positions located in eight regional offices throughout the United States. This staff is responsible for the enforcement of Federal safety regulations and standards.
AUTOMATED TRACK INSPECTION PROGRAM	-	Provides support for vehicles which are used to survey Class I and regional and shortline routes for track maintenance and rehabilitation.
SAFETY REGULATION AND PROGRAM ADMINISTRATION	-	Provides support for safety headquarters which issues standards, procedures and regulations, administers post-accident and random testing of railroad employees, provides technical training and manages highway-rail grade crossings projects.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscretionary Chgs	FY 1994 New/Expanded Programs	FY 1994 Request
Federal Enforcement	$ 29,357	$ 31,534	$ 1,204	$ 1,387	$ 34,125
Automated Track Inspection Program	1,003	1,335	22	0	1,357
Safety Regulation and Program Administration	6,944	7,779	527	1,128	9,434
TOTAL - RAILROAD SAFETY	$ 37,304	$ 40,648	$ 1,753	$ 2,515	$ 44,916

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	Federal Enforcement	Auto Track Inspection	Safety Reg/ Prog Admin	Appropriation Total
FY 1993 BASE	$31,534	$1,335	$7,779	$40,648
NONDISCRETIONARY CHANGES:				
Comparability pay increase FY 1993	229		47	276
Annualization FY 1993 FTEs	27		34	61
Within-grade and merit pay increases	283		55	338
Other pay-related costs	238		51	289
Other benefits	315		130	445
Working capital fund payments	(155)		40	(115)
Inflation/Vendor increases	280	47	170	497
Non-recurring costs	(13)	(25)	0	(38)
SUBTOTAL - NONDISCRETIONARY CHANGES	1,204	22	527	1,753
NEW OR EXPANDED PROGRAMS:				
Training program staffing (one FTE)	96			96
Training program support	443			443
Grade crossing and AWS inspectors (8 FTEs)	848			848
Headquarters staffing (7.5 FTEs)			699	699
Data management support			429	429
SUBTOTAL - NEW OR EXPANDED PROGRAMS	1,387	0	1,128	$2,515
TOTAL ADJUSTMENTS to FY 1993 BASE	2,591	22	1,655	$4,268
TOTAL FY 1994 REQUEST - RR SAFETY	$34,125	$1,357	$9,434	$44,916

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD SAFETY

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0702-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full-time permanent	21,120	23,571	25,271
11.3	Other than full-time permanent	170	117	209
11.5	Other personnel compensation	319	352	409
11.9	Total personnel compensation	21,609	24,040	25,889
12.1	Civilian personnel benefits	5,068	5,853	6,570
13.1	Benefits for former personnel	26	...	...
21.0	Travel and transportation of persons	4,531	5,006	5,717
22.0	Transportation of things	113	108	129
23.3	Communications, utilities, and miscellaneous charges	204	118	203
25.1	Consulting services	442	600	600
25.2	Other services	4,538	4,977	5,206
26.0	Supplies and materials	277	152	246
31.0	Equipment	646	85	356
41.0	Grants, subsidies and contributions	-70	...	...
99.0	**Subtotal, direct obligations**	**37,384**	**40,939**	**44,916**
99.0	**Reimbursable obligations**	**8**	**...**	**...**
99.9	**Total obligations**	**37,392**	**40,939**	**44,916**

FY 1994 REQUEST HIGHLIGHTS

The Railroad Safety FY 1994 request of $44.9 million reflects an increase of $4.3 million over the FY 1993 enacted level and includes funding for a staffing increase of 29 positions and 17.5 FTEs. Of this amount, a net increase of $1.8 million is associated with items over which FRA has no control, such as annualization of the FY 1993 pay raise, merit pay and within-grade increases, and inflation or outside vendor increases.

The program increase of $2.5 million will support critical staffing needs, the safety training program and data management. The staffing increases are essential to carry out DOT's Highway-Rail Grade Crossing Initiative and the related inspection of automated warning devices and to implement and complete outstanding rulemakings and other safety projects mandated by Congress. In addition, funds are needed for safety data bases that help allocate inspector resources which, in turn, address program weaknesses identified by GAO and to provide technical support and guidance to regional staff on increasingly complex railroad operations.

FRA is requesting no-year funds under the Data Management subprogram for contractual services and maintenance of computers. This will be discussed in detail under the Data Management section of the narrative.

The following outlines the specific requests by the three major activities:

BUDGET ACTIVITY - FEDERAL ENFORCEMENT

Total Increase in Budget Authority	$2,591,000
Total Increase in FTEs	9.5

NON-DISCRETIONARY INCREASES	$1,204,000	.5 FTEs

The increases include annualization of the FY 1993 pay raise, within-grade and merit pay increases, FICA/medicare payments, health insurance premiums, employee compensation, and inflation or increased vendor costs. Also included is annualization of one position (.5 FTE), allowed in the FY 1993 enacted level, which is required for additional work associated with the Hollings-Danforth Bill. These increases are offset by decreases in the WCF and one-time contracts for a new increase of $1,204,000.

NEW OR EXPANDED PROGRAMS	**$1,387,000**	**9 FTEs**
STAFFING	**($848,000)**	**(8 FTEs)**

Additional staffing is requested in the following areas:

Highway-Rail Grade Crossing

Eight positions and 4 FTEs are requested for Highway-Rail Crossing Specialists. These positions are needed to implement DOT's multi-faceted Highway-Rail Grade Crossing Initiative. Approximately 95 percent of all rail-related fatalities annually are the result of highway-rail crossing accidents or trespassing. FRA currently does not have regional personnel specializing in highway-rail crossings. These positions will be designated to promote and facilitate corridor improvement programs, including crossing closures; keep the railroads and relevant highway authorities properly focused on crossing-specific problems, such as sight distances; and serve as liaison for Operation Lifesaver crossing safety education activities.

Automated Warning Devices

Eight positions and 4 FTEs are requested for Automated Warning System Inspectors to implement FRA's forthcoming Inspection, Testing and Maintenance (IT&M) Standards for automated warning devices at highway-rail grade crossings. This will permit FRA to monitor railroad compliance with the new regulation affecting 60,000 automated crossings. If FRA does not receive additional positions to implement the new IT&M standards, existing inspector resources will have to be diverted in order to begin staffing this Congressionally mandated program. This will hamper implementation of the new regulation and will be detrimental to FRA's other safety compliance monitoring activities. Approval of the Automated Warning System Inspectors positions (4 FTEs) will allow FRA to inspect a small sampling (approximately 15 percent) of the automated devices on the large (Class I) railroads and a 50 percent sampling on the smaller railroads once every two years.

Non-Ceiling FTEs

FRA is also requesting the restoration of 7 non-ceiling FTEs reduced from the FY 1993 enacted level as part of a government-wide staffing reduction. No additional funding is requested for this staffing.

FRA SAFETY TRAINING PROGRAM	**($539,000)**	**(1 FTE)**

This increase is requested to continue the FRA Safety Training Program initiated in FY 1991. The program is now directed toward an increased training schedule. Curriculum development, establishment of training plans, and other administrative start-up tasks are significantly less time-consuming than in past years, thus allowing the Office of Safety to concentrate more fully on increasing the number of students being trained and the number of courses planned. In FY 1994, it is anticipated that 819 students will receive technical training through the 34 technical courses planned.

In order to accomplish this ambitious training schedule, FRA is requesting one position and one FTE ($96,000). Currently, FRA is authorized five training program positions which are allocated as follows: one training and communications program manager, who is an educator responsible for program design, the quality of instructional methods (including course evaluations), and coordinating training activities; and four training specialists representing the track, signal and train control, motive power and equipment, and operating practices disciplines. A sixth training staff position which would be utilized for a hazardous materials training specialist is being requested. The addition of a hazardous materials trainer is particularly needed, given the forthcoming expansion of the State Safety Participation Program to include enforcement of the Hazardous Materials Regulations, as authorized by the Hazardous Materials Transportation Uniform Safety Act of 1990. Training specialists assist in orientation of new employees, make presentations to industry groups, and contribute to regulatory development and enforcement activities, as well as prepare and present classroom instruction to FRA and State inspectors and inspector trainees.

An increase of $443,000 in travel funds is requested to cover the increased cost of training additional students resulting from additional classes and additional State inspectors. The FRA has made a commitment to provide training to the State inspectors equal to Federal inspectors in this cooperative national inspection program. The number of State inspectors is expected to increase by approximately 25 percent.

BUDGET ACTIVITY - AUTOMATED TRACK INSPECTION PROGRAM

Total Increase in Budget Authority	**$22,000**

NON-DISCRETIONARY INCREASES **$22,000**

The FY 1994 request reflects non-discretionary increases of $47,000 in the Automated Track Inspection Program. This increase is due to inflation and is offset by decreases in non-recurring one-time contract costs of $25,000, for a net increase of $22,000 in FY 1994.

BUDGET ACTIVITY - SAFETY REGULATION AND PROGRAM ADMINISTRATION

Total Increase in Budget Authority	$1,655,000
Total Increase in FTEs	8

NON-DISCRETIONARY INCREASES **$527,000** **.5 FTEs**

An increase of $527,000 includes the cost of the annualization of the FY 1993 pay raise, normal within-grade and merit pay increases, FICA/medicare payments, health insurance premiums, employee compensation, and inflation or increased vendor costs. Also included is the annualization of one position (.5 FTE), allowed in the FY 1993 enacted level, which is required for additional work associated with the Hollings-Danforth Bill.

NEW OR EXPANDED PROGRAMS **$1,128,000** **7.5 FTEs**

STAFFING **($699,000)** **(7.5 FTEs)**

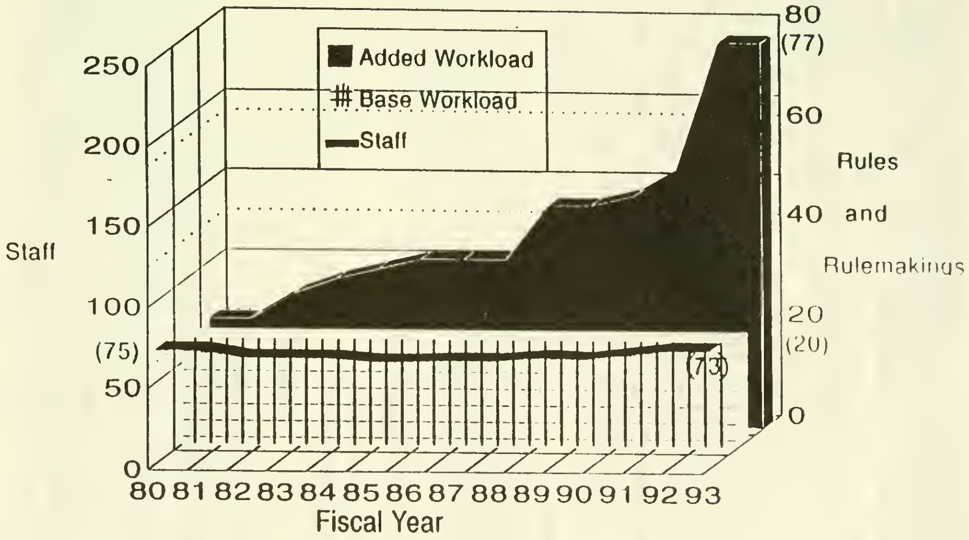
The Office of Safety is requesting 14 positions and 7.5 FTEs to meet workload demands and to alleviate longstanding staffing shortages.

FRA currently has 35 safety rulemakings and other safety projects on the agenda for FY 1993-1994, the majority of which are required by Congress. The Office of Safety does not have a sufficient number of personnel with railroad expertise in each of the inspection disciplines (track, motive power and equipment, operating practices, hazardous materials, and signal and train control) to fully and expeditiously address the technical aspects of all of these rulemakings, and there are only two staff economists to conduct the required, regulatory impact analyses. The shortage of economists is especially critical to timeliness.

The graphic shown on the next page illustrates the significant increase in safety's workload due to rulemakings alone in the last five years with a slight decrease in headquarters staffing.

In addition to rulemakings, the Office of Safety is also working on other mandated and critical projects. In the period 1989-1991, GAO issued a spate of highly critical reports to Congress concerning FRA's safety program. FRA has forthrightly addressed and resolved, or at least largely alleviated, these GAO criticisms. However, a number of vulnerabilities remain, especially in the functioning of the computer-based models for all inspector resource allocations. The functioning of these computer systems is dependent upon two current employees. Time has not been available for cross-training or documentation. Insufficient staffing to provide documentation for these vital computer programs and backup to these key personnel threatens the viability of FRA's resource allocation programs and, if either of these individuals leaves FRA, there is insufficient institutional knowledge and expertise to keep the programs functioning.

Safety Headquarters Understaffing



Workload shown in final rules and rulemakings in progress as fair representation of total workload

The Office of Safety is also doing everything possible to facilitate the Northeast Corridor experiments with European trainsets, Texas TGV and Orlando Maglev. That cannot continue indefinitely without major defaults in the conventional rail safety programs or an increase in safety's resources.

In total, the positions and associated funding involved are modest, given the heavy Federal commitment to railroad safety legislation. Regulatory unresponsiveness harms the industry as much as it harms the public. FRA's inability to process waiver requests from the railroads on a timely basis often represents a costly delay in a railroad being able to take advantage of a technological improvement which may be as safe or safer than a current piece of equipment or current operating practice. Similarly, FRA's rulemaking backlog is not only delaying safety benefits, represented by a reduction in fatalities and injuries, but often costs the industry millions of dollars as well by delaying implementation of cost-beneficial regulatory changes.

A detailed description of the positions follows:

	Positions	FTEs
Disciplines:		
Operating Practices	3	2.0
Motive Power & Equipment	2	1.0
Hazardous Materials	1	.5
Signal and Train Control	1	.5
Track	2	1.0
Highway-Rail Crossing/Trespassers	1	.5
Planning & Evaluation	2	1.0
Systems Support	2	1.0
Total	14	7.5

Operating Practices Division

Three additional positions and 2 FTEs are requested for the Operating Practices (OP) Division for FY 1994.

The OP discipline deals not only with the enforcement of Federal regulations, but also with established carrier rules, practices and procedures, train operations, and associated support systems. The Division provides analysis and oversight with regard to administration and enforcement of the Locomotive Engineer Certification Program, alcohol/drug regulations, Hours of Service Act requirements (including issues relating to crew quarters and camp cars), and a broad range of operating rules issues.

FY 1993 authorized staffing does not permit FRA to remain current in processing waiver requests, to meet statutory rulemaking requirements, to provide adequate technical and interpretive guidance to FRA field and industry personnel, and to expeditiously complete essential safety projects related to the operating practices of railroads.

+ 2 OP Specialists for Development and Implementation of Regulatory Initiatives

Two additional OP Specialists are needed for continued development and subsequent implementation of a number of regulatory initiatives. Rulemaking is underway in several areas involving the OP Division including random alcohol testing, blue signal protection for railroad employees, railroad communications, train dispatching, and locomotive engineer qualifications.

In response to the changing industry, FRA proposed to modify the blue signal protection rule to allow railroads to supplement operating crews with "utility employees." Due to industry comments, FRA has reopened the issue and expanded the scope of the review to include the blue signal regulation as a whole.

Section 11 of the Railroad Safety Enforcement and Review Act of 1992 (RSERA) requires the Secretary to conduct a safety inquiry into radio standards and procedures used in the railroad industry. This will require significant consultation with rail labor, management and suppliers. An evaluation of the status and potential impact of Advance Train Control Systems must be included. FRA plans to conduct a Safety Inquiry in March 1994 and provide Congress a report on the status of communications in the industry by July 1994.

Section 17 of RSERA requires DOT to address concerns identified in FRA's National Train Dispatcher Assessment of 1987-1988. A report to Congress is required to include recommendations for legislative or regulatory action to "... ameliorate any such problems that affect safety in train operations...." Although OP personnel monitor industry groups developing changes to codes of operating rules, FRA has not enjoyed sufficient staffing to permit careful analysis of operating rules and training across the national system, particularly on newly formed railroads. Similarly, railroad dispatching system reviews have been delayed or reduced to regional-level activities (inhibiting transfer of learning from prior assessments) due to insufficient staffing.

FRA is amending the minimum qualification for locomotive engineers in response to petitions for reconsideration and requests for clarification. The amendments involve major changes to the basic rule which requires railroads to have a formal process for evaluating prospective operators of locomotives. In addition, FRA is formulating a draft NPRM to address other issues related to application of the rule. With the implementation of the new regulation for qualification standards for locomotive engineers, FRA received, in 1992, in excess of 500 programs from the involved railroads covering 34,000 Railroad Locomotive Engineers. Certification denials and revocations by the railroads result in appeals in FRA that require investigation and resolution. FRA received over 50 petitions appealing revocations last year. The review of these cases is time-consuming. Reviews have not yet been completed on 12 cases received in 1992 and reviews of the 15 cases received in the first three months of 1993 have not been initiated.

Without the additional OP Specialists requested to address these regulatory activities, it will not be possible for FRA to meet all of these statutory mandates.

+ 1 OP Specialist for Complaint Handling

An additional OP Specialist is needed in FY 1994 to respond to a large volume of complaints of industry non-compliance with safety rules and/or unsafe operating practices. FRA annually receives about 240 OP-related complaints from various sources. Each complaint requires oversight by headquarters staff. With current staffing levels, it is not possible to expeditiously respond to this volume of complaints involving potential industry safety hazards. The current OP complaint backlog is over 400. With an additional OP Specialist, FRA will be able to reduce the complaint backlog by 50 percent in FY 1994.

Motive Power and Equipment Division

Two additional positions and one FTE are requested for the Motive Power and Equipment (MP&E) Division for FY 1994.

+ 1 MP&E Specialist for Regulatory Projects and Handling of Waiver Requests

An additional MP&E Specialist is requested for regulatory projects. Section 7 of RSERA requires the Secretary to conduct a review of the rules with respect to railroad power brakes, and revise the rules based on such safety data as may be presented during that review. The following specific areas must be addressed: prescribe standards regarding dynamic brakes; and require two-way end-of-train devices under certain conditions. FRA held a series of public meetings to initiate this process. This rulemaking proceeding is an extremely complex, labor-intensive endeavor.

In response to Section 10 of RSERA, FRA is conducting research and analysis to determine the costs and benefits of the following locomotive crashworthiness features:

(1) braced collision posts;
(2) rollover protection devices;
(3) deflection plates;
(4) shatter-proof windows;
(5) crash refuges;
(6) uniform sill heights;
(7) anticlimbers;
(8) protection of fuel tanks and/or means to protect spilled flammable liquid from entering the cab; and
(9) any other devices intended to protect cab occupants.

Regulatory projects also include evaluation and analysis of applications for exemptions from the MP&E regulations. The waiver requests cover a diversity of subject matter entailing specifications and operating requirements. Many of the waiver evaluations require significant research and analysis. FRA annually reviews approximately 80 applications for waivers concerning glazing, power brakes, locomotive inspection, safety appliances, and freight car safety standards. With the current staffing level, it is not possible to maintain currency with the volume of waiver requests. The current backlog of MP&E waiver requests is over 30 submissions. This backlog often represents a costly delay in a railroad being able to take advantage of a technological improvement which may be as safe or safer than a current piece of equipment or current operating practice. An additional MP&E Specialist will allow FRA to eliminate the backlog of waiver requests.

+ 1 MP&E Specialist for Safety Projects

One MP&E Specialist is requested for the conduct of essential safety projects in FY 1994. In addition to the thorough review of locomotive crashworthiness, other safety projects under the MP&E Division include: monitoring of prototype testing of Roadrailer equipment on the rear of Amtrak trains; assessing roller bearing failures and responsive action; evaluation of articulated freight cars; investigation to determine the cause, potential of failure and corrective action needed to relieve the problem of thermal cracked wheels on New York area commuter railroads; and monitoring the safety performance of double stack intermodal cars. Timely completion of these safety projects addressing known or potentially serious safety risks is compromised by the limited staffing availability. Each year, additional projects must be added to respond to emerging safety issues. These evolving, and often critical, safety problems cannot be adequately and quickly addressed within current staffing constraints.

Signal and Train Control Division

One position and one-half FTE are requested for the Signal and Train Control (S&TC) Division for FY 1994.

+ 1 S&TC Specialist for Evaluation of ATCS and Handling Waiver Requests

The development of Advance Train Control Systems (ATCS) is a joint venture of the U.S. and Canadian railroads. ATCS will use data radio as a vital link to provide fail safe means of protecting both train operations and maintenance-of-way forces. An on board S&TC Specialist and an Electronics Engineer have worked closely with railroad industry ATCS committees in the development of these ATCS systems. Additional work is needed to determine the Federal regulations necessary to assure the safe performance of these systems. In addition, work must be done to promulgate operating rules for these systems. Additional S&TC staff is needed to assist in developing and to subsequently monitor the regulations and operating rules needed to assure that safety is provided in the development of ATCS systems. This additional S&TC Specialist will also enable FRA to evaluate the adequacy of signal protection on high density lines carrying passengers, hazardous materials, and fast intermodal trains. This additional S&TC Specialist will also allow FRA to eliminate the backlog of S&TC waiver requests.

FRA must act upon approximately 100 requests for waivers from the rules governing railroad signal and train control systems or approval for a discontinuance or material modification of a signal system. Many of these are detailed and require exhaustive research and analysis. In addition, an average of almost 200 false proceed reports are received annually which must be analyzed for cause, possible trends, and development of corrective action. Due to staffing shortages, FRA has found it necessary to bring field staff into Headquarters to aid in the review of signal applications, waiver petitions and false proceed reports. This approach not only reduces total field inspection and enforcement activities, but the need for field personnel to travel into Washington limits the overall productivity in the waiver handling process as well. More importantly, the field personnel brought in on a one-time basis, or infrequently, lack familiarity with the process and must spend time ascending the learning curve, further reducing their productivity. In short, use of field personnel is not a cost-effective alternative and, despite their use, there is a backlog of over 50 S&TC waiver requests.

Hazardous Materials Division

One position and one-half FTE are requested for the Hazardous Materials (HM) Division for FY 1994.

+ 1 HM Specialist for Rulemaking Initiatives

This Division must respond to over 160 applications for exemptions from the Hazardous Materials Regulations. This is a time-consuming process that includes initial review and docketing of applications, preparation of Federal register notices, assignment to the appropriate region for field investigation, review of the field reports, review and acknowledgement of protest letters, recommendations as to the disposition of applications, and preparation of decision letters to all interested parties. The Hazardous Materials Division is also currently directly involved in 11 hazardous materials rulemakings with the Research and Special Programs Administration. For 5 of the 11, FRA is preparing the preamble and drafting the regulation. The current staffing level is insufficient to expeditiously make the needed regulatory revisions. The following tank car issues are illustrative of the special project work associated with this discipline:

(1) Stub sill separations. Approximately 167,000 tank cars, out of a population size of 210,000 tank cars, are the stub-sill design. Several such cars have failed (tank separation from the sill), but fortunately none has resulted in a serious accident or release of product. FRA is actively guiding a complex of inspection activities designed to identify stub sill cracks at an early stage of initiation and ensure corrective action under Emergency Order Number 17.

(2) Integrity of thermal insulation on DOT Class 112, 114 and 105 tank cars. On certain tank cars, thermal insulation has failed, resulting in the top one-third of the cars not meeting Federal thermal requirements. FRA is actively monitoring remedial action.

(3) Continuous sill separation on a select series of tank cars. FRA has had a group of tank cars constructed with a continuous center sill to be inspected and repaired before being returned to service, due to a service failure.

(4) E.O. 16. FRA issued Emergency Order No. 16, involving 5,400 dual-diameter tank cars, which required approximately 2,100 cars to be inspected by September 1992. Monitoring compliance and dealing with specific interpretive issues requires extensive communications with the railroads and tank car owners.

The lessons learned from FY 1992-1993 projects of this nature will guide rulemaking with respect to tank car design and inspection criteria during FY 1994. These are extremely complex challenges from the point of view of engineering, practical implementation and cost-effectiveness.

One additional HM Specialist is needed for FY 1994 to permit FRA to develop the follow-on rulemaking initiatives.

Track Division

Two positions and one FTE are requested for the Track Division for FY 1994.

Complete revision of the track standards is now underway. This revision will, in turn, result in a large increase in staff time needed for field guidance. The Track Division currently must respond to over 8,000 telephone inquiries annually to callers seeking guidance or interpretations of the Federal Track Standards and related enforcement policy. The baseline workload, which includes responding to complaints and management of the automated track inspection program and bridge structural safety program, fully consumes the current staff.

+ 1 Track Specialist for Oversight of Small Railroads

An additional Track Specialist is needed to provide adequate oversight over the small railroads. There are now 640 railroads in the United States (only 11 of which are large, Class I railroads). The number of regional and shortline railroads and excursion/tourist lines, some of which can carry over 100,000 passengers annually, has proliferated over the past several years. The range of effectiveness of the management skills applied to the direction of these properties are variables with consequent impact on system safety.

A GAO audit was highly critical of FRA for not inspecting 32 of these railroads in 1989. To ensure that adequate safety is maintained on the smaller railroads, FRA's National Inspection Plan requires that every railroad be inspected in proportion to the relative risk it poses but, at a minimum, once a year. In addition, each FRA Regional Director schedules periodic meetings to explain Federal safety regulations to these smaller carriers.

The additional workload resulting from the proliferation in the number of railroads requires the exercise of planning, scheduling and leadership skills at FRA headquarters in order to assure the formation and supervision of a rational, nationally consistent program. Deteriorated track conditions are the predominant public safety issue posed by marginal small railroads, and the number of waiver requests, each of which requires careful review, has increased dramatically as a result of the increased number of small railroads.

+ 1 Civil Engineer for Bridge Program

A Civil Engineer position is also requested for FY 1994 to assist the current FRA Bridge Engineer in engineering and program management functions. The present requirement for only one person to manage the FRA bridge program, perform all engineering calculations for bridge analysis, travel to all eight regions on short notice for serious bridge problems, and provide all bridge training to FRA personnel, has created an unmanageable workload. The need for oversight of bridge inspection by the railroads grows each year, as small railroads operate an increasing portion of the rail system and bridges continue to age with use.

Highway-Rail Crossing and Trespasser Programs Division

FRA is requesting one additional position and one-half FTE for the Highway-Rail Crossing and Trespasser Programs Division for FY 1994.

+ 1 Operations Research Analyst for Highway-Rail Crossing Initiative

Every year the vast majority of deaths associated with railroading stem from either highway-rail crossings or trespassing. Preliminary 1992 safety statistics indicate that highway-rail crossing accidents generated 49 percent of the total number of fatalities in rail operations, and trespassers were the source of an additional 46 percent, for a total of 95 percent (projected to total 1,105 out of a grand total of 1,163 fatalities).

FRA is taking a more proactive role in reducing the death toll at highway-rail crossings and of railroad trespassers. FRA has established the Highway-Rail Crossing and Trespassers Programs Division within the Office of Safety Analysis. Currently, this Division has a staff of four professionals who are responsible for providing staffing and oversight for an extremely large number of regulatory, program, policy and research initiatives in the highway-rail crossing and trespasser areas. Prior to FY 1992, only two positions were dedicated to this program. The other two positions and a secretarial position were transferred from existing staffing levels within the Office of Safety. However, even with a staff of four professionals, this new Division cannot adequately address FRA's highway-rail and trespasser safety initiatives.

FRA has defined the Highway-Rail Grade Crossing Safety Initiative to include: a program for elimination of highway-rail crossings (25 percent by the year 2000); a regulatory initiative, including the development and implementation of inspection, testing, maintenance (ITM) and timely response requirements regarding crossing warning devices; an engineering and research initiative which includes improved signing at crossings and research regarding characteristics and use of train horns and the conspicuity of rail equipment; and a law enforcement initiative and education programs to include public awareness, technical training, exhibits, publications and data. In addition to further improvements in rail and highway safety, the realization of the full potential of high-speed rail and commuter rail programs will be largely dependent on the successful execution of these initiatives.

To adequately address all of these issues and to progress with the new initiatives and directions, FRA must enhance the existing staff by adding an Operations Research Analyst to accomplish the following work: Coordinate and guide FRA crossing and trespasser activities and relations with industry and state offices; conduct analytic studies of program effectiveness related to warning device alternatives, modifications and maintenance; and develop and update analytic tools for use by Federal, state and local highway authorities and railroad management concerning procedures for developing crossing closure recommendations and for making project, site and warning device selections.

Planning and Evaluation Division

FRA is requesting two positions and one FTE for the Planning and Evaluation Division for FY 1994.

The Planning and Evaluation Division is responsible for the: conduct of all railroad safety regulatory impact analyses, the Office of Safety's Information Collection Budget responsibilities under the Paperwork Reduction Act; administration of FRA's railroad user fee program; administration of FRA's State Participation Program; development and execution of the Office of Safety's budget and all associated fund administration activities; and development and implementation of resource allocation and work measurement systems for the inspector field staff including the National Inspection Plan, the Quality Improvement Program, the Regional Inspection Points Listing, and the Staffing Allocation Model.

+ 1 Economist for Regulatory Analysis

One additional economist is requested for the conduct of regulatory analyses. A total of 35 separate regulatory projects have already been identified as agenda items for calendar years 1993 and 1994, including important reviews of existing regulatory programs. Over half of these projects involve the development of both an NPRM and a final rule within that period. More than 20 rulemakings are already under various stages of review within the Office of Safety. Given the continuing need for periodic review of regulations to ensure that safety needs are adequately addressed in a cost-effective manner, frequent enactment of Congressional regulatory mandates, and rail management and rail union petitions for specific regulatory initiatives, it is highly unlikely that this workload will diminish in the future. To address this massive workload, the Planning and Evaluation Division currently has two staff economists assigned to regulatory evaluation, one of whom also has supervisory responsibilities.

The Office of Safety absorbed the user fee program without additional staffing. In addition, to alleviate an enormous staffing shortage within the newly established Highway-Rail Crossing and Trespasser Safety Division, two professional positions and a secretarial position were transferred from the Planning and Evaluation Division. Consequently, essential support for the implementation of the new National Inspection Plan (NIP), the Quality Improvement Program/work measurement system (QIP), and the Regional Inspection Points (RIP) program has been inadequate. Reporting errors encountered in the implementation of the new QIP could not be quickly resolved due to lack of sufficient headquarters staff resources to rapidly respond to questions from the field inspector staff. As a consequence, until the corrections could be made, feedback on inspector performance was not available and progress toward achievement of NIP goals could not be adequately monitored. Each time changes are made to enhance the QIP, NIP and/or RIP programs, similar implementation problems can be expected as a result of inadequate staffing.

+ 1 Railroad Safety Specialist for Field Guidance

FRA now has the analytical tools to allocate the inspectors' time to locations of greatest risk. However, to adequately utilize these new tools and effectively implement the NIP, a Railroad Safety Specialist position is needed in the Planning and Evaluation Division. This additional staffing will provide expert guidance to the field staff on proper reporting under the QIP, RIP and NIP programs and will also ensure the accuracy of the data for the purpose of evaluating proper allocation of inspection resources. In addition, the careful and expert review of inspection and work measurement data will help promote uniformity and consistency of the inspection effort and monitor the effectiveness of each region in meeting planned NIP goals.

Additional staff will also permit backup for key personnel. Currently, the Agency is extremely vulnerable under the Resource Allocation Program should key personnel leave. The design and implementation of the NIP, as well as any modifications to it, have been handled by one employee who has the needed technical background to formulate and manage such a complex model. At this time, the office does not have anyone else with comparable background and training to be able to make modifications to the model and understand the implications of those modifications on the plan. Program continuity is endangered by this lack of depth since the system is complex and there is a continuing need to make adjustments. In addition to this model, the same employee is responsible for the Regional Inspection Points Program (RIP), the Quality Improvement Program (QIP), and the Staffing Allocation Model (SAM) which are just as complex as the NIP. These programs have an integral relationship. If the programs are not completed and do not interrelate as planned, FRA will not be able to provide Congress with the type of oversight of FRA's mission that the Agency has promised and is expected to deliver.

Systems Support Division

FRA is requesting two positions and one FTE for the Systems Support Division for FY 1994.

The Systems Support Division is responsible for the development and maintenance of all of FRA's safety databases including: railroad accident and casualty reports, the inspection reporting system, the grade crossing inventory system, FRA's regional inspection points system, the National Inspection Plan system, the Quality Improvement Program (work measurement) system and various ancillary files. This Division also has responsibility for providing Office of Safety headquarters and field support for computer hardware and software; responding to Freedom of Information Act requests; and assignment, review and analysis of all FRA in-depth investigation reports of train accidents and employee fatalities.

+ 1 Computer Programmer

In a series of audits, GAO pointed out that FRA needs to enhance the existing data bases and to make more and better use of accident and casualty data. A 1989 GAO audit revealed underreporting of accidents, injuries, property damage, and lost workdays on portions of three major railroads. In response to the need to correct these railroad reporting deficiencies, FRA Operating Practices Inspectors have increased the amount of time spent reviewing railroads' accident reporting records. FRA has also analyzed the railroads' internal control procedures for reporting. An ANPRM hearing was held on May 17, 1990 to review and receive suggestions about enhanced reporting techniques to improve the accident/incident system. FRA is using the results of the review of the railroads' internal control procedures to determine how to best pursue this rulemaking. FRA planned to issue a NPRM proposing revisions in the accident/incident reporting in September 1991. However, due to staffing shortages, preparation and issuance of this NPRM has been significantly delayed. An NPRM hearing is now planned for July 1993.

With the development of the Quality Improvement Program (QIP), the Regional Inspection Points (RIP) listing, and the new National Inspection Plan (NIP), FRA has the tools to allocate inspectors' time to locations of greatest risk. However, to adequately utilize these new tools and effectively implement the NIP, additional computer expertise is needed. An additional computer programmer is needed to help analyze the needs of the field offices and develop specialized applications to meet their specific needs, including menus with parameter driven programs. This new programmer will work closely with the regional staff, explaining the nuances of the safety data bases, and will help field personnel formulate specific needs and requests to aid in better allocation of inspector resources and in assessing inspector performance.

The safety data system is highly complex with many interrelationships existing over the four monthly data bases, the auxiliary (reference) files, the annual data bases, and the different users and their needs. In spite of best efforts within existing staffing, there has never been time to document facets of the data. The system has undergone a series of changes to meet management's goals and safety initiatives. During these changes, the Guide for Reporting Accidents/Incidents was amended, new computer programs were written, and old databases were retrofitted. Again, there has not been enough time or staffing for documentation.

Currently there is no backup for key personnel. Coupled with the lack of documentation for procedures and controls, this makes the Agency extremely vulnerable should key personnel leave. FRA needs to be able to effectively use the system, regardless of changes in personnel. The additional computer programmer requested will permit the development of procedures manuals and training of additional employees to back up key personnel in the analysis and reporting of the accident/incident system.

+ 1 Accident Analyst

FRA is requesting one additional Accident Analyst for FY 1994.

FRA currently has a staff of two accident analysts to: assign/oversee high-priority accident investigations; review, analyze and correct all FRA-conducted accident investigations and all employee fatality investigations (in 1991 and 1992 there were a total of 268 accident investigations and 79 employee fatality investigations); review and analyze investigations of employee supplemental reports to human-factor-caused accidents; provide needed liaison for accident investigations with the National Transportation Safety Board (NTSB); assist in providing training to new inspectors and refresher training to other inspectors on accident investigation techniques; revise the Accident Investigation Manual to cover new forms, techniques and procedures; and review all Freedom of Information Act (FOIA) requests to insure that the information is complete and accurate and that privacy of individuals is maintained. (There are 500-600 FOIA requests to review each year).

FRA is attempting to increase the quality of the investigation program through increased technical training. However, there is limited time available to permit extended periods of absence by either of the Accident Analysts for advanced training of field personnel in the latest investigation techniques. Also, due to the overwhelming workload, the Accident Analysts have been unable to revise the Accident Investigation Manual. With an additional Accident Analyst, FRA will have the capability to evaluate, on an ongoing basis, FRA's comprehensive accident reports for evolving safety programs. The current insufficient staffing level in analysis of FRA's accident and employee fatality reports has also delayed some of FRA's regulatory initiatives since this is essential data for the regulatory evaluations. The requested position will also contribute to both the quality and timeliness of regulatory products.

DATA MANAGEMENT ($429,000)

The Office of Safety's data management subprogram includes all data processing activities associated with safety records, accidents, inspections, inventories, bulletins, congressional requests, national inspection plan, and scores of other recurring and non-recurring safety reports. In addition, it includes the central management and support of the Office of Safety's LAN which connects all the personal computers in Safety headquarters. The LAN allows users to transmit safety files and share data between Safety offices and other FRA offices, and between Safety and the Department.

In FY 1994, no-year funds are requested for the total Data Management subprogram ($1,554,000). Having funds that are available until expended maximizes the Office of Safety's ability to negotiate contracts for entry/processing services and computer maintenance on a timely basis and at competitive prices. Currently, with one-year money, there is often a delay in awarding contracts until the appropriation is enacted. Over the years, this has resulted in a complete halt in data entry and processing, disrupting the flow of vital information to the inspection process, and in higher contract costs due to incremental funding or individual task orders. If funds can flow year-to-year without disruption, contracts can be negotiated on a comprehensive basis, thus allowing more work at a lower rate.

The increase of $429,000 in FY 1994 is requested to support additional programming tasks and to adequately maintain and upgrade equipment. The latter is very important to the capacity and expediency of collecting, analyzing and distributing safety data.

Included in this request are the following:

New Tasks - $57,000

$57,000 is required to cover the estimated costs of additional special programming tasks which will be needed to support new regulatory initiatives. This programming requires a high degree of statistical knowledge and skills which are not currently available within the Office of Safety.

Maintenance - $25,000

$25,000 is needed to cover the additional costs of maintenance for the Network, file servers, repeaters, computers, and printers.

Network Replacement - $347,000

Represents the Office of Safety's amount for the FRA-wide computer network replacement, the justification for which is found under the Office of the Administrator appropriation (on page 18). Safety's estimate will cover 370 personal computers.

FY 1992 ACCOMPLISHMENTS

- Developed a Hazardous Materials Incident Report (DOT F 5800.1) database to increase hazardous materials incident reporting by both Class I, local and regional railroads.
- Published and distributed to the regions for field use a manual containing information from the Hazardous Materials Incident Report Database.
- Instituted and oversaw four inspection programs developed to determine if weld cracking is inherent in tank car stub sill assemblies and pose a risk in transportation. These programs have already resulted in nearly 7,600 tank cars being required to be inspected over a three year period.
- Issued Emergency Order No. 17 requiring 120,000 stub sill tank cars to be inspected over a 7 year period, based on results from sampling stub sill tank cars.
- Issued Emergency Order Number 16 requiring owners of dual-diameter tank cars to inspect a sampling of the dual-diameter fleet.
- Conducted a systems assessment of the Union Pacific Railroad National Customer Service Center for compliance with the Hazardous Materials Regulations.
- Processed 31 FRA approval letters for portable tanks in TOFC/COFC service as a result of 72 requests for approval.
- Processed 22 exemption applications and 15 emergency exemption applications for relief from the Hazardous Materials Regulations for rail transportation.
- Presented two one-week courses on new Hazardous Materials Regulations (HM-181), a one-week basic Hazardous Materials Course, a one-week Trainee Hazardous Materials Course and a one-week Noise and Fume Course.
- Prepared a Notice of Proposed Rulemaking (NPRM) concerning FRA approval of portable tanks transported in TOFC/COFC service (Docket HM-197).
- Assisted the Research and Special Programs Administration in preparing Final Rules for Docket HM-126F, HM-208, and proposed rulemakings for Dockets HM-212 and HM-211.
- Issued the Motive Power and Equipment and Operating Practices Enforcement Manuals to the field.
- Drafted the Rules of Specific Applicability for safe operation of the Texas TGV equipment.

- Worked with the Association of American Railroads (AAR) and railroads to resolve power brake, articulation and structural problems with double stack, articulated, intermodal container cars.

- Worked with the Massachusetts Bay Transportation Authority, Kawasaki Rail, Inc. and Amtrak to resolve a tendency of high capacity commuter cars to derail at low speeds.

- Processed 17 petitions for waivers with certain provisions from the following Regulations:

Locomotive Safety Standards	3
Power Brake Standards	4
Freight Car Standards	1
Safety Glazing Standards	9

- Developed rulemaking for Blue Signal Protection of Utility Employees.

- Completed an assessment and follow-up assessment on the National Railroad Passenger Corporation (AMTRAK) train operation in the Northeast Corridor (NEC) Philadelphia Division and Washington Terminal. Special emphasis was placed on the carrier's operational testing program. Implemented a corollary review of Amtrak "off corridor" operational testing around the country.

- FRA's drug and alcohol program showed continued improvement in testing results during the year. Drug and alcohol testing in the railroad industry posted a reduction in positive percentages in all categories. In mandatory post-accident testing, 1.5 percent of the employees tested positive for prohibited use of alcohol or drugs, down from 3.2 percent in 1990. In reasonable cause testing, 2 percent of employees tested positive for alcohol or drugs, down from 2.2 percent in 1990. Reports on random testing for drugs for 1991 indicate a positive rate of .9 percent based upon over 50,000 tests compared to a random testing positive rate a little over 1 percent in 1990. In addition, FRA continues to conduct compliance reviews on Class 1, 2, and 3 railroad drug and alcohol program administration with a total of 20 railroad programs tentatively scheduled for review this year.

- Developed rulemaking on 49 CFR 217 Railroad Operating Rule filing requirements.

- Conducted several seminars on FRA post-accident toxicology for Amtrak and Metro-North Passenger Railroads.

- Implemented the regulation requiring certification of locomotive engineers under Federal standards. All Class I and II railroads submitted training plans for FRA review.
- Continued work on electronic record keeping of hours of service records in conjunction with petition filed by CSX Transportation.
- Processed 82 applications from carriers seeking FRA approval to materially modify or discontinue signal and train control systems, and 3 petitions seeking relief from the requirements of the Rules, Standards, and Instructions governing the installation, maintenance, and testing of signal and train control systems. Because of the complexity and public interest shown, public hearings were held at eight locations. The FRA Safety Board granted 81 approvals during this period.
- Performed concentrated inspections of Amtrak's signal test records on the Northeast Corridor to determine compliance with Federal regulations.
- Reviewed existing signal and train control regulations to determine their applicability to the proposed TGV trains and maglev operations.
- Performed concentrated inspections to determine compliance with Federal regulations applicable to the Union Pacific Railroad's automatic train stop system.
- Reviewed correspondence and conducted meetings pertaining to Amtrak's proposal of a new 9-aspect continuous cab signal/speed control system and intermittent transponder civil speed enforcement system to be used on the Northeast Corridor.
- Reviewed and drafted comments on proposed signal and train control systems that would be used for 15 high-speed rail corridor proposals from various states.
- Assisted the AAR on Track Circuit Parameters Task Force.
- Drafted an ANPRM regarding 49 CFR 213 Track Safety Standards.
- Commenced an extensive survey of railroad industry bridge inspection and maintenance practices with the objective of determining whether bridge safety regulations are required.
- Prepared the test safety requirements for Amtrak's evaluation of the Swedish tilt-body train, X2000.

- Developed preliminary versions of track and guideway safety standards for a proposed high-speed railroad venture in Texas and a magnetic-levitation project in Florida.

- Processed 28 petitions for the transfer of track inspection and maintenance responsibility from various track owners to lessees/assignees.

- Conducted three Advanced Track seminars for regional supervisory track specialists and FRA/State track inspectors.

- Established a Highway-Rail Crossing and Trespasser Programs Division within the Office of Safety Analysis to promote crossing and trespasser programs. A crossing safety initiative has been defined encompassing a crossing elimination element, safety research, education and enforcement programs and training.

- Research projects in various stages include innovations in passive signing, review of horn volumes and patterns, locomotive and freight car conspicuity, signal system malfunctions, crossing illumination standards and ways and means for nighttime or temporary closure of crossings.

- Established exhibits at national and state conventions promoting crossing safety and trespasser prevention programs and research. Meetings attended included the International Association of Chiefs of Police, the National Sheriffs' Association, Associates of the Federal Bureau of Investigation Academy and the Transportation Research Board's Annual Conference.

- Continued negotiations with Florida communities, the Florida East Coast Railroad, and the State regarding FRA preemptions of whistle bans and alternatives to whistle bans.

- Drafted an ANPRM on whistle bans.

- Published a NPRM to require railroads to repair automated warning devices with undue delay.

- Held a workshop with major freight, passenger, and commuter railroads on trespasser prevention in an attempt to establish trespasser initiatives. FRA will be publishing a trespasser bulletin.

- Promoted closure of crossings as the safest alternative to effect a decline in highway-rail crossing accidents. As a result of FRA's promotions, State and industry activities have been initiated to develop model State laws and procedures to close crossings.

- Published a safety pamphlet designed for the use of local school superintendents and administrators in determining how and what to do to improve school bus safety at highway-rail grade crossings.
- Collected $14 million in FY 1991 user fee assessments.
- Billed $32 million for FY 1992 user fee assessments.
- Drafted an NPRM on random alcohol testing as mandated by the Omnibus Transportation Employee Testing Act of 1991.
- Published a Final Rule on protection for Maintenance-of-Way workers on railroad bridges.
- Fully implemented the new National Inspection Plan, which strategically allocates inspector resources based on risk measures.
- Closed seven Recommendations issued by the National Transportation Safety Board related to various railroad safety issues.
- As part of the training effort, 22 technical training courses were implemented: one orientation course for new inspectors; one trainee orientation course; and eight basic, three trainee, and nine advanced courses to ensure that FRA inspectors and trainees are provided with the knowledge and skills needed to do their jobs. Six management and supervisory courses were also provided to assist the managers and supervisors in performing their duties and responsibilities.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

For necessary expenses for railroad research and development, [$25,205,000] $18,166,000, to remain available until expended: **Provided**, That up to [$650,000] $100,000 shall be made available to support, by financial assistance agreement, railroad-highway 1/ grade crossing safety programs, including Operation Lifesaver: **Provided further**, That $100,000 is available until expended to support by financial assistance agreement railroad metallurgical and welding studies at the Oregon Graduate Institute. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

1/ Note: Technical error; should read "highway-rail."

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0745-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
Program by activities:				
	Direct program:			
00.01	Equipment, operations, and hazardous materials research................	3,901	7,322	3,890
00.02	Track, structures and train control.	4,350	5,788	6,400
00.03	Magnetic levitation and high speed rail........................	9,176	8,617	... 1/
00.04	Safety of High Speed Ground Transportation....................	3,390	6,610	4,500
00.05	Research and Development facilities	77	2,115	1,300
00.06	Administration......................	1,737	2,314	2,076
00.07	Other...............................	167	531	...
00.91	Total direct program..............	22,798	33,297	18,166
01.01	Reimbursable program................	...	250	250
10.00	Total obligations..................	22,798	33,547	18,416
Financing:				
17.00	Recovery of prior year obligations..	-615	...	...
21.40	Unobligated balance available, start of year.....................	-7,944	-8,092	...
24.40	Unobligated balance available, end of year..........................	8,092	...	...
39.00	Budget authority (gross)	22,331	25,455	18,416
Budget authority				
	Current:			
40.00	Appropriation.....................	22,331	25,205	18,166
	Permanent:			
68.00	Spending authority from offsetting collections (new)................	...	250	250

1/ See investment proposal for continuation of high-speed ground transportation activities.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0745-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Relation of obligations to outlays:			
71.00 Total obligations	22,798	33,547	18,416
72.40 Obligated balance, start of year	18,123	18,836	20,853
74.40 Obligated balance, end of year	-18,836	-20,853	-17,693
78.00 Adjustments in unexpired accounts	-615	...	...
87.00 Outlays (gross)	21,470	31,530	21,576
Adjustments to budget authority and outlays:			
Deductions from offsetting collections:			
88.00 Federal funds	...	-250	-250
89.00 Budget authority (net)	22,331	25,205	18,166
90.00 Outlays (net)	21,470	31,280	21,326

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

PERSONNEL SUMMARY

Identification Code 69-0745-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Total compensable workyears:			
Full-time equivalent employment	17	21	20

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

PROGRAM AND PERFORMANCE

The objective of the Railroad Research and Development (R&D) program is to provide science and technology support for rail safety rulemaking and enforcement and to stimulate technological advances in conventional railroads and high-speed guided ground transportation technology including magnetic levitation (maglev). This activity is conducted with the cooperation and some cost-sharing from private sector organizations.

The program of Research and Development is organized under five activities as follows:

EQUIPMENT, OPERATIONS AND HAZARDOUS MATERIALS	-	Provides for research in safety and performance improvements to freight and passenger equipment, operating practices and hazardous materials.
TRACK, STRUCTURES AND TRAIN CONTROL	-	Provides for research in safety and performance improvements to track structure, track components, railroad bridge and tunnel structures, signal and train control, and track-vehicle interaction.
SAFETY OF HIGH-SPEED GROUND TRANSPORTATION	-	Provides for research in the development of safety performance standards and the conduct of projects accompanying safety and environmental assessments for new high-speed ground transportation systems.
R&D FACILITIES	-	Provides support for the Transportation Test Center (TTC) near Pueblo, Colorado which is a government-owned, contractor-operated facility. Under FRA ownership, the Association of American Railroads (AAR) is the private operator under a contract for Care, Custody and Control.
ADMINISTRATION	-	Provides support for the Deputy Associate Administrator for Technology Development and the salaries and related administrative expenses of the Office of Research and Development.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscretionary Chgs	FY 1994 New/Expanded Programs	FY 1994 Request
Equipment, Operations and Hazardous Materials Research	$ 3,901	$ 3,890	$ 0	$ 0	$ 3,890
Track, Structures and Train Control	4,350	5,600	0	800	6,400
Magnetic Levitation and High Speed Rail Technology 1/	9,176	[13,000]	0	0	0
High Speed Ground Transportation	0	6,500	(6,500)	0	0
Safety of High Speed Ground Transportation	3,390	6,500	(2,000)	0	4,500
R & D Facilities	77	765	0	535	1,300
Administration	1,737	1,950	77	49	2,076
Other	167	0	0	0	0
TOTAL - RAILROAD R & D	$ 22,798	$ 25,205	$ (8,423)	$ 1,384	$ 18,166

1/ "Magnetic Levitation and High Speed Rail Technology" replaced by "Safety of High Speed Ground Transportation" in R&D appropriation and new HSGT program proposed by the Administration.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	Equip/Ops/ Haz Matls	Track/ Structures/ Train Cont	High Speed Ground Trans.	Safety of HS Ground Trans.	R & D Facilities	Admin	Appropriation Total
FY 1993 BASE	$ 3,890	$ 5,600	$ 6,500	$ 6,500	$ 765	$ 1,950	$ 25,205
NONDISCRETIONARY CHANGES:							
Comparability pay increase FY 1993						16	16
Annualization of FY 1993 FTEs						39	39
Within-grade/merit pay increases						12	12
Other pay-related costs						39	39
Other benefits						26	26
Working capital fund payments						7	7
Inflation/vendor increases						10	10
Non-recurring costs			(6,500)	(2,000)		(72)	(8,572)
SUBTOTAL - NONDISCRETIONARY CHANGES	0	0	(6,500)	(2,000)	0	77	(8,423)
NEW OR EXPANDED PROGRAMS:							
Track, structures, train control		800					800
Environmental law compliance					535		535
Network replacement						49	49
SUBTOTAL - NEW OR EXPANDED PROGRAMS	0	800	0	0	535	49	1,384
TOTAL ADJUSTMENTS to FY 1993 BASE	0	800	(6,500)	(2,000)	535	126	(7,039)
TOTAL FY 1994 REQUEST - RR R&D	$ 3,890	$ 6,400	$ 0	$ 4,500	$ 1,300	$ 2,076	$ 18,166

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD RESEARCH AND DEVELOPMENT

OBJECT CLASSIFICATION (in thousands of dollars)

Identification Code 69-0745-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full-time permanent	1,129	1,355	1,451
11.3	Other than full-time permanent	13	29	...
11.5	Other personnel compensation	16	46	47
11.9	Total personnel compensation	1,158	1,430	1,498
12.1	Civilian personnel benefits	173	227	255
21.0	Travel and transportation of persons	103	104	38
22.0	Transportation of things	21	1	1
23.3	Communications, utilities, and miscellaneous charges	-17	10	10
25.1	Consulting services	73	750	250
25.0	Other services	21,198	28,478	15,884
26.0	Supplies and materials	56	23	23
31.0	Equipment	33	24	7
41.0	Grants, subsidies and contributions	...	2,250	200
99.0	**Subtotal, direct obligations**	**22,798**	**33,297**	**18,166**
99.0	**Reimbursable obligations**	**...**	**250**	**250**
99.9	**Total obligations**	**22,798**	**33,547**	**18,416**

FY 1994 REQUEST HIGHLIGHTS

The FY 1994 request level of $18.2 million for Railroad Research and Development reflects a decrease of $7 million from the FY 1993 enacted level.

An increase of $1.4 million is requested for new projects in Track, Structures and Train Control; environmental law compliance clean-up activities at the Transportation Test Center; and replacement of the FRA-wide network. This increase is offset by non-recurring costs of $8.5 million in FY 1994, resulting in a net decrease of $7.1 million in new or expanded programs.

An increase of $149 thousand is associated with items over which FRA has no control, such as annualization of the FY 1993 pay raise, annualized FTE for one position allowed in FY 1993, merit pay and within-grade increases, and inflation or outside vendor increases. This increase is offset by a decrease of $72 thousand in non-recurring costs, for a net increase of $77 thousand in administrative costs.

BUDGET ACTIVITY - EQUIPMENT, OPERATIONS AND HAZARDOUS MATERIALS

FY 1993 Enacted	**$3,890,000**
FY 1994 Request	**$3,890,000**
Total Increase in Budget Authority	**$ 0**

EQUIPMENT AND COMPONENTS

Competition within the transportation industry has led railroads to increase efforts to reduce operating costs while increasing throughput. These efforts include introduction of new and innovative vehicle designs, new train concepts, heavier cars (125-ton), longer trains, higher speeds and new components. These changes in railroad equipment and operating speeds and procedures require evaluation to ensure that they do not erode the safety of both freight and passenger equipment operation. Failure of new equipment designs or car components such as wheels, bearings, couplers, and brakes can cause serious railroad accidents that endanger the public, as well as railroad employees. Funding is necessary to investigate these potential problems in a timely manner and before safety problems develop.

Research will be directed to react to immediate safety concerns while also evaluating the safety aspects of new freight and passenger equipment in the prototype stage of development and to develop performance standards for this equipment. In FY 1994, research will continue into freight car component clearances and tolerances. Vehicle/rail dynamic analysis has suggested that side bearing and truck bolster clearances could be revised, thus alleviating problems experienced with track degradation. An examination of the performance of freight cars with different clearances is necessary before modifying the existing standards.

The introduction of new passenger car equipment, including commuter rail cars, requires investigation of performance criteria and vehicle-track interaction to ensure that this new equipment can operate over existing trackage.

Reliable methods for identification of potential failure in critical components is an important contribution to accident prevention. Development and evaluation of promising nondestructive inspection systems will be performed in FY 1994 to establish wheel removal criteria limits based on residual stress levels and flaw recognition that lead to equipment failures and derailments in an effort to provide improved inspection measures which can reduce the number of wheel-related derailments in a more timely and efficient fashion. Research will be initiated to address improved safety glazing standards for rail vehicle windshields and windows. Research will continue to define the fatigue properties and other related structural characteristics of alternate rail vehicle construction materials.

Investigations will continue in FY 1994 to evaluate locomotive control compartment structural and functional arrangements and develop ergonomic requirements to improve the locomotive crew environment as well as to enhance crashworthiness and employee safety in the event of an accident. Analytical studies are necessary to determine the effectiveness of crashworthiness features on existing locomotives. An investigation will be undertaken to determine the feasibility of conducting full-scale crash testing to validate the results of the analytical studies on the performance of collision posts, anti-climbers, and other crashworthy features. Investigations will be carried out on fuel tank arrangements and what provisions may be necessary to deter post-collision entry of flammable liquids into locomotive cabs.

Research and testing will also continue in FY 1994, in an effort to: improve on the braking of long, heavy conventional trains; eliminate uneven dissipation of energy to wheels; and reduce the possibility of derailment during severe braking. The safety characteristics and performance parameters of new or improved braking system concepts will also be evaluated.

The FY 1994 projects are as follows:

	FY 1993 Enacted	FY 1994 Total Request	Total Increase
	(Dollars in Thousands)		
EQUIPMENT AND COMPONENTS	($1,200)	($1,250)	(+$ 50)
a. Identify causes of freight car component failures and test for corrective action; continue assessment of new and/or untried freight and passenger cars to assist in development of performance standards.	[450]	[500]	[+50]
b. Test nondestructive evaluation devices for ability to detect incipient failure of freight car components such as bearings, couplers, and wheels.	[300]	[300]	[---]
c. Evaluate improvements to the locomotive design for crashworthiness features and interior cab designs to enhance crew safety and improve the work environment.	[240]	[240]	[---]
d. Investigate and test braking equipment to reduce overheating of wheels and to ensure adequate braking of long, heavy trains.	[210]	[210]	[---]

OPERATING PRACTICES

The emphasis of this program continues to be on selection, training, work environment, and work practices of operating personnel.

Railroad training programs will be evaluated to ensure that they are adequate to qualify locomotive engineers and dispatchers. For engineers, this is a key requirement for certification under FRA's recently published regulations. A similar evaluation will be made regarding dispatcher training.

Conditions contributing to undesirable occupational stress and fatigue impacts upon the performance of engineers and dispatchers will continue to be evaluated, in conjunction with practical approaches to either eliminate the cause or minimize the effect. For dispatchers, this will include the development of a workload measure which may be used by both railroad supervisors and FRA inspectors to determine the practical and safe limits of performance that may be reasonably expected of an individual in a particular job situation.

Stress, fatigue, efficiency and, therefore, safety are affected by the design of the equipment and work place which must be used by individuals to perform their jobs. For train crews, survival chances in a train crash may also be affected. Ergonomics evaluations will be made of locomotive cab interiors and dispatcher stations to identify and correct, where practical, conditions which may adversely affect the performance or individual safety of dispatchers and locomotive crews.

In 1991, highway-railroad grade crossing accidents produced 2,702 casualties, including 608 fatalities. In an effort to improve this record, FRA will continue to support the public education efforts of the nationwide Operation Lifesaver Program and to participate in projects demonstrating innovative approaches to increased protection and train visibility at crossings.

Railroad traffic density and employee productivity are increasing beyond previous record levels. Train lengths, car weights and locomotive power are steadily increasing. The body of knowledge of the interaction among cars, locomotives and track has expanded greatly over the last two decades, together with the application of computers to railroad operations. With the continuing improvement of the safety record of the railroads has come an increasing awareness of train accidents involving improper train make-up or operation.

It appears that the problems of train make-up and operation are too complex for solution through a single set of regulatory criteria and that most railroads have instituted procedures which result in safe operation, in most instances. However, situations have been noted involving failure to identify train make-up risks or failure to establish sufficiently conservative guidance for train make-up. FRA believes that a Federal policy on this matter would be in the public interest, and that such a policy should be formulated to accommodate those operating procedures that assure safe operation while encouraging the improvement of marginal or unsafe situations.

It is proposed to begin to study in FY 1994, the practices of the railroad industry in regard to train make-up and operation, particularly at locations with high accident records or critical accident potential and to develop an analytical methodology for ongoing reviews. The findings will support a rational FRA policy on this subject and provide documentation and resources that will provide a sound technical foundation for program implementation.

The safety implications of high-speed train operations upon the train crew and those who function in the vicinity of these operations are to be identified and evaluated. Amtrak and several States are planning to study the use of such trains in several corridors. FRA must be prepared to address standards and operating practices issues by the time decisions are made to build or upgrade track and facilities needed to implement this type of service.

The FY 1994 projects are as follows:

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Increase
OPERATING PRACTICES	($1,690)	($1,640)	(-$50)
a. Evaluate training programs and experience requirements relating to development of operating personnel selection and qualification standards.	[300]	[300]	[---]
b. Identify stress, fatigue and workload conditions expected to adversely influence the safety performance of dispatchers and locomotive engineers.	[590]	[590]	[---]
c. Assess, from a human factors perspective, the safety implications of new procedures, equipment, and designs under consideration within the railroad industry. Of particular interest are advanced train control systems and new design concepts for the locomotive cab.	[100]	[100]	[---]

d.	Develop and distribute educational materials to target groups of the public to improve awareness of the hazards of highway-railroad crossings and participate in the demonstration of innovative improvements to protection and train visibility at crossings.	[250]	[200]	[-50]
e.	Evaluate written operating rules to determine their ease or difficulty for comprehension of railroad personnel, and evaluate operating rules tests to determine how well they ascertain a working understanding of the rules. Analyze train make-up procedures and track-train interaction to improve railroad operating practices.	[250]	[250]	[---]
f.	Identify and evaluate those aspects of high-speed train operations requiring special selection criteria, training or scheduling of work hours of operating personnel.	[200]	[200]	[---]

HAZARDOUS MATERIALS

TOTAL SAFETY is the goal for hazardous materials rail transportation. Toward this goal, major improvements in tank car safety have been made and will continue to be made to minimize the incidence of leaks, spills, and damage to equipment and the environment, and to reduce injuries and fatalities. Immediate focus for this research is to find solutions for the continuing evidence of failure of tank cars and their components.

In FY 1992 and 1993, emphasis has been on: (1) the causes of failure of tank car stub-sill area; (2) the safety of using dedicated trains for transporting spent nuclear fuel and other high-level radioactive waste compared with other methods of rail transportation; and (3) mode and route studies of transporting spent nuclear fuel and other high-level radio-active waste. In FY 1994, the studies into the causes of tank car failures will continue. In addition, research emphasis will be on causes of failure of welds in the tank seams, such as the welds on dual diameter tank cars, stub sills of the other tank car designs, and mapping the critical parts of the tank car.

Research will continue in FY 1994 for determining proper pressure relief devices for tank cars, evaluating full containment for tank cars carrying corrosive materials, and evaluating the need for head shields for tank cars used to carry flammable gases other than those already regulated, including materials classified as poison by inhalation. Continued funding in this area is required to respond in a timely manner to recommendations from the National Transportation Safety Board and to support hazardous material rulemaking.

In FY 1994, research activities will also continue in the area of formulating a selection criteria for the proper type, size and capacity of pressure relief devices to be used on tank cars based on their intended lading. A railroad tank car design study, as well as a limited risk assessment program on tank car/lading compatibility, was initiated in 1992. Early results of these programs have pointed to the need for additional research on developing criteria for tank car/lading compatibility. This is another project to be undertaken in FY 1994.

The dynamics of tank cars carrying hazardous materials and their control through design and/or operating practices as a safety control will continue to be evaluated in FY 1994. Tank cars involved in accidents need to be examined to determine the amount of damage. Techniques for damage assessment need to be formulated along with methods for lading transfer, if required.

The tank car industry has been investigating the use of new tank car construction materials. In FY 1994, the focus on tank car design will continue to evaluate these new proposed construction materials in order to ensure adequate structural integrity should the cars be involved in typical railroad accidents. Another phase will be the formulation of criteria for the acceptance of materials of construction for the tank car and its components.

In FY 1994, research will continue into determining residual stresses and improved methods for testing tank cars for evidence of cracks and inadequate stub sill welding. The use of acoustic emission in place of the currently required hydrostatic test for non-pressure tank cars will be evaluated. Funding is needed to ensure these safety issues are addressed and to provide support for rulemaking, if rulemaking is necessary.

Some of the proposed systems to be examined are: (1) performing finite element analysis for certain suspect tank designs at the start; and, (2) after the analysis, evaluation of the degree of weld integrity for the different welds on the tank, as well as the integrity of welds required for the tanks depending on the type of the hazardous material lading.

The FY 1994 projects are as follows:

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Increase
HAZARDOUS MATERIALS	($1,000)	($1,000)	(---)
a. Investigate and conduct studies of failures of tank cars and evaluate improvements to the tank car design to reduce the potential for hazardous material releases. Investigate factors involved in hazardous material carried in double stack service and tank car dynamics and determine the proposed parameters to improve them. Investigate and determine methods of damage assessment and lading transfer for tank cars involved in an accident.	[500]	[500]	[---]
b. Evaluate alternative means of determining the structural integrity of tank cars such as the use of an acoustic emission test in lieu of prescribed pressure tests. Evaluate the structural integrity of new materials intended for tank car construction. Determine the degree of required stress relief on repaired welds.	[500]	[500]	[---]

BUDGET ACTIVITY - TRACK, STRUCTURES AND TRAIN CONTROL

FY 1993 Enacted	$5,600,000
FY 1994 Request	$6,400,000
Total Increase in Budget Authority	$ 800,000

TRACK AND COMPONENTS

This subprogram addresses those elements of railroad fixed facilities that account for over 50 percent of the annual number of track-caused accidents. The dollar damage associated with those accidents is more than $32 million annually. More important, improvements in physical and economic factors in the railroad industry have led to more intensive utilization on the existing plant: higher train speeds, heavier cars, and increasing traffic density. Track-caused train accidents now have potentially more severe consequences than ever before.

While much has been gained from the completed research in this area, much remains to be done. The analytical work in track buckling mechanism studies has resulted in maintenance guidelines which have been useful to the industry in combating this source of train accidents. Significant reductions in the number of accidents attributed to track buckling have been seen since this research began. Attention now must be focused on methods and devices to: (1) measure track lateral resistance; (2) measure rail longitudinal force; and (3) extend the study of track buckling to track constructed with concrete ties. Additional work must be done to assess the influence of track with dual-block ties, similar to those used on the very high-speed track being used by the French for application of the TGV in this country.

In the area of rail and rail metallurgy, FRA work has resulted in a specification to direct the periodic inspection of rail for fatigue initiated defects. The work now will concentrate on appropriate actions to be taken to: (1) remedy detected defects; (2) improve the metallurgy or post processing of rail steels; and (3) investigate optimum rail section design to extend rail life while reducing the risk of accidents. Since the average railroad car capacity continues to increase (over 10 percent in the past 10 years), the effects of those higher axle loads on defect initiation and growth must continue to be assessed. This subprogram includes the study of rail and turnout performance under the controlled testing using the Facility for Accelerated Service Testing (FAST) and other test tracks at the Transportation Test Center (TTC), as well as facilities of cooperating railroads, to secure accurate and time-accelerated results.

The design and maintenance of track, structures, signals, and train control systems are undergoing innovative changes necessitated by the increasing demands of competition. The benefits or consequences of these changes must be evaluated and predicted before their extensive adoption. The long-term effects of these changes on public safety must be determined by FRA and considered in the conduct of railroad safety programs. In particular, safety standards for track, structures and signal systems must be adapted to the state-of-the-art in those fields to permit innovation, at the same time protecting the safety of the public.

This program includes research on more complex track components, such as turnouts, in addition to more commonly considered track components, such as rail, crossties and ballast. Directly connected to rails and turnouts are signal system components that protect the safe movement of trains and control highway-rail crossing warning devices.

FRA has noted several recent innovations in railroad signal and train control systems, particularly involving the use of microprocessor controls, that cannot be evaluated in terms of existing Federal standards. Development is proposed for procedures that are urgently needed to permit FRA to test and evaluate the safety of these new systems and components to permit innovative progress to continue while public safety is protected.

In addition to ongoing research work addressing grade crossing safety improvements, this request includes funds to initiate an analysis of information on the performance of highway grade crossing active warning devices. Accidents continue to occur at grade crossings even when equipped with sophisticated warning systems. It is imperative that a study be undertaken to determine the underlying causes of accidents in order to prescribe effective solutions to the problem. The study will consider the design of systems, the testing and inspection of those systems and the causes of malfunction, if any, in those systems.

The requested FY 1994 funding reflects the increased emphasis on the testing, analysis and evaluation of safety-critical track, as well as grade crossing and signal system components.

The FY 1994 projects are as follows:

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Increase
TRACK AND COMPONENTS	($3,100)	($3,300)	(+$200)
a. Conduct experiments, tests, and analyses to develop specifications for the installation and maintenance of continuous welded rail track subjected to extreme temperature variations and normal train operation.	[700]	[700]	[---]
b. Conduct analyses, tests and experiments relating to rail steel to improve the understanding of the formation and growth of fatigue defects and develop standards to reduce the risks of train accidents attributed to rail failure.	[800]	[800]	[---]
c. Conduct analyses, experiments and tests to evaluate the performance and failure modes of turnouts, switches, signal systems, and train control devices and develop standards for the inspection and maintenance of those systems.	[600]	[600]	[---]
d. Conduct analyses, tests and demonstrations of grade crossing safety improvements initiated in FY 1991 and evaluate effectiveness of those improvements on accident and casualty reduction.	[200]	[400]	[+200]

e. Provide operation and test support on the Facility for Accelerated Service Testing (FAST) to investigate track component behavior in a controlled load environment.	[500]	[500]	[---]
f. Conduct experiments on a variety of different track constructions to quantify track buckling behavior when subjected to known compressive force and restraint conditions and develop techniques to reduce derailment risk.	[300]	[300]	[---]

INSPECTION-DETECTION

The risk of train accidents that result from failure of track or structures can be further reduced if continuing efforts to improve rail flaw and other track structure failure detection techniques and related inspection equipment are successful. New techniques and equipment will provide accurate and reliable warnings well in advance of structural failure of track or bridges.

The FY 1994 request will support the initiation of refurbishment of the Government-owned Test Car and the operation of the recently developed Gage Restraint Measurement System (GRMS) which has been successfully demonstrated to consistently detect areas of weak gage restraint during operation at 25 mph. The operation of this equipment on regional and shortline railroads will aid in the economical maintenance of those railroads while providing an enormous public benefit by locating areas in the track which pose very high derailment risks.

In FY 1994, test support continues to be provided for testing of track safety performance standards and is expanded to the area of bridge safety in order to identify problems that may occur in the implementation of these specifications. Preliminary track tests have been completed on typical high tonnage track, and safety limits for track strength and repetitive geometry irregularities have been suggested, based on those test results. FRA intends to significantly expand test train operations in FY 1994 and to use the results of that more complete coverage to assure the applicability of those safety limits on all types of track with varying speed, tonnage, and track conditions. It is expected that this phase of development will receive substantial industry support and the costs of train operation will be shared by the railroads on which the test train will operate.

Technical support for advanced inspection technology is being continued in order to obtain the necessary expertise to conduct independent evaluations and demonstrations of the safety effectiveness of new inspection devices and techniques. This work includes the continued evaluation of an inspection device for detecting incipient track buckling conditions and a device to nondestructively measure the ability of track to withstand lateral gage-widening loads. In order to continue to develop and improve this inspection technology, general maintenance along with continual updating of the Government-instrumented research vehicle will be necessary.

New techniques to determine the risk of failure of track-carrying structures, including bridges, have been proposed to permit the objective evaluation of the remaining fatigue life of these structures in light of their advancing age, increased car weights, and the continuing widespread transfer of railroad properties to regional and shortline railroads. Initial testing has been accomplished, and further testing and evaluation will be necessary to determine the usefulness and adaptability of these techniques for railroad bridge inspection and analysis.

An increasing number of railroad lines are being transferred from major railroads to regional and shortline carriers. FRA is receiving many complaints from sources with potentially legitimate concerns over the structural integrity of railroad bridges. FRA must act to protect the safety of the public by ensuring that all owners of railroad bridges manage the structural integrity of their structures to prevent train accidents due to structural failures.

The FRA has initiated a program to survey the bridge safety and management programs in the railroad industry. The information developed will support an FRA policy on railroad bridge safety that will best protect the interests of the public.

All of the above issues require that FRA maintain the capability to independently evaluate the structural integrity of a railroad bridge. A requirement for analysis of a railroad bridge could develop on short notice and for a variety of reasons. Such work typically requires one or several specialized capabilities, such as underwater inspection or materials testing, for which FRA cannot practically maintain an in-house capability.

The FY 1994 funding level also reflects the increasing requirement for analysis and testing efforts directed toward the development and testing of a variety of other inspection devices for detecting incipient critical failures of track, structures or vehicle components. When utilized in a comprehensive inspection program based on strategies developed in track and bridge degradation studies, these devices will permit detection of dangerous conditions that otherwise might go undetected, using conventional inspection techniques and procedures.

The FY 1994 projects are as follows:

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Increase
INSPECTION-DETECTION	($1,700)	($2,100)	(+ 400)
a. Provide engineering and analytical support necessary to: (1) maintain, calibrate, and operate Government rail vehicle and track testing equipment (data acquisition cars) and specialized instrumentation in the conduct of safety research testing, data collection, and analysis of test results; (2) update the capabilities of the instrumented research vehicle; and (3) upgrade track measuring equipment to conduct tests of track strength and harmonic crosslevel on substantial mileage of shortline and regional railroad trackage to meet requirements of current and foreseen test programs.	[300]	[700]	[+400]
b. Provide for development and application of advanced techniques for accident evaluation and the development of improved inspection technology to reduce the incidence of failures and enhance planning techniques for more effective maintenance of track, bridge, and signal systems.	[300]	[300]	[---]

c.	Evaluate track and structure degradation characteristics and rates, as a function of track usage and initial quality, to develop appropriate inspection and maintenance strategies.	[900]	[900]	[---]
d.	Investigate new and innovative techniques for the detection of incipient bearing failures to reduce the risk of train accidents.	[200]	[200]	[---]

TRACK-TRAIN INTERACTION

Many accidents not directly attributable to human error or vehicle or track failure are caused by undesirable track-train interactions. As new vehicles and track designs are proposed, potential safety implications associated with train handling must be known before the new vehicle-track systems are placed in widespread use.

A series of vehicle-track dynamics tests to complement the vehicle-track systems research is being conducted at the Transportation Test Center (TTC) and on revenue freight tracks. Analyses follow these tests to predict and examine potential vehicle and track problems not previously experienced, with the objective of eliminating the causal circumstances before accident occurrence. Technical support to accomplish this independent assessment of industry problems is essential to the success of FRA's safety mission.

This subprogram also includes research on the implication of track failures as related to train accidents. Analysis of train accident trends and detailed post-accident analysis of failed components provide the railroad community with vital information that will assist in future accident prevention, and provide precise direction and continuing evaluation for railroad safety research programs.

The FY 1994 funding level reflects the increasing awareness of the potentially profound impact that variations in vehicle design, operating practices and track maintenance procedures can create as the rail vehicle and track structure interact as a whole system.

The FY 1994 projects are as follows:

	(Dollars in Thousands) FY 1993 Enacted	FY 1994 Total Request	Total Increase
TRACK-TRAIN INTERACTION	($800)	($1,000)	(+$200)
a. As an active partner in the Government/Industry cooperative Vehicle-Track Systems (VTS) program, conduct specific studies of safety-related problems and examine the technical issues involved in the interaction between railroad rolling stock, track, and track structures.	[200]	[400]	[+200]
b. Conduct analyses and tests intended to reduce derailments resulting from vehicle-track interaction by defining limiting track geometry degradation conditions and vehicle speed limits.	[600]	[600]	[---]

BUDGET ACTIVITY - SAFETY OF HIGH-SPEED GROUND TRANSPORTATION (SHSGT)

FY 1993 Enacted	**$13,000,000**
FY 1994 Request	**$4,500,000**
Total Decrease in Budget Authority	**$-8,500,000**

NOTE: In FY 1993, FRA received $13 million under the budget activity entitled "Maglev and High-Speed Rail." The work performed under this budget activity is now being funded in two program areas:

	FY 1993	FY 1994	Difference
1. High-Speed Ground Transportation	$6,500	0	$-6,500

The work under this program is incorporated into the new HSGT investment program presented on page 164 in this document. Therefore, funding is no longer required in the R&D appropriation. The FY 1993 projects are not listed for expediency since they will not continue as such in FY 1994.

	FY 1993	FY 1994	Difference
2. Safety of High-Speed Ground Transportation	$6,500	$4,500	$-2,000

This work is now captured under a new R&D budget activity as described in the following narrative.

BACKGROUND

Section 7 of the Rail Safety Improvement Act of 1988 (RSIA) reaffirmed FRA's jurisdiction over the safety of high-speed rail systems and incorporated magnetically levitated (maglev) systems into this responsibility. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) (in Section 1036) requires a report on commercial feasibility of high-speed ground transportation systems. This report is to include a technical assessment with "a comparison of the safety (including dangers associated with grade crossings) ... and environmental impacts ... of the various technologies." It also requires "an examination of the work being done to establish safety standards for high-speed ground transportation as a result of Section 7 of the Rail Safety Improvement Act of 1988."

FRA's existing regulations do not contemplate operations in excess of 110 miles per hour. The regulations have been developed over decades in response to safety problems not resolved by industry standards and practices. Accordingly, they address specific issues discretely and do not treat railroads/ maglev as an integrated system. That approach, entirely satisfactory for conventional railroads, appears to be in need of modification for application to new high-speed rail systems designed and operated as integrated, highly interactive, fault tolerant systems having a significantly higher order of interdependent subsystems.

No safety standard exists covering fault-tolerant systems. Similarly, there is no safety standard for the reliability of the computer hardware and software on which high-speed systems rely. It is clear that some additions to and modifications of some existing rules are needed along with the development of new standards. To do this will require a systematic identification of deficiencies in current Federal, technical societal, industry and foreign standards, and conduct of the research and testing necessary to establish sound safety requirements for magnetically levitated and very high-speed, steel wheel on steel rail transportation systems. Many safety requirements can be expected to be equally applicable to maglev as well as high-speed rail while others will necessarily be unique to one or the other.

In FY 1992, FRA engaged the Transportation Research Board (TRB) to conduct an industry workshop for the purpose of determining safety research needs for maglev and high-speed rail as perceived by industry. The results of that workshop help guide FRA's high-speed rail and maglev research.

MAGLEV. In the execution of its safety mission, the FRA requires factual scientific and technical information upon which to base its proposed rulemakings. Safety assessments of maglev vehicle designs proposed for development and/or installation will be conducted to determine the safety requirements necessary to maintain an equivalent level of safety to that of existing conventional railroads. A "system safety" approach will be used to determine the vehicle safety requirements that are consistent with its interdependence upon the guideway and control aspects of the total system.

As in vehicle safety, focus will also be on the safety and operational problems involving the guideway structure and train control system and their interaction with the vehicle and surrounding environment in providing for safe system performance. Guideway information is required in order to adequately assess the safety performance of a variety of guideway designs when installed under various foundation and pier conditions and differing climatic and vehicular operations. Investigations must be conducted in guideway material and design performance characteristics, inspection and maintenance techniques and the examination of the dynamic behavior of vehicles over a particular guideway and across the speed ranges contemplated. Serious safety and operational implications will be addressed in the study of train control systems, particularly where computer-driven automated operations are contemplated.

This program provides for addressing System Safety in ensuring that all new system concepts and the already developed high-speed and maglev systems are evaluated based upon the precepts contained in Military Standard 882B. Integrated, highly interactive, fault-tolerant systems such as the foreign very high-speed rail and maglev systems proposed for U.S. application invite regulatory treatment as a system. For example, the signal system, the on-board microprocessor networks and the braking systems for these advanced systems are so interdependent and interactive that the safety of any component of these subsystems can be fully understood only in the context of the whole system. Currently, there are no FRA standards for fault-tolerant systems. Many questions need to be answered. For example: how many components may fail before a train is prohibited to leave the terminal?; and how many components of such a system and what kinds of components may fail enroute before a train is required to stop or proceed at restricted speed to the nearest repair point?

Crashworthiness, better called "collision avoidance and accident survivability," merits continued attention. Questions raised are: Should these very high-speed systems be required to meet the buff strength standards of conventional railroading and are they appropriate? Should there instead be some standard requiring controlled crushing to protect the occupants from excessive dissipation of the energies involved? Many existing standards do not account for the energy levels involved in the speed ranges contemplated. These issues must be fully investigated to determine the need for change and establish the new parameters to be adopted.

The FY 1994 projects are as follows:

	(Dollars in Thousands) FY 1993 Enacted	FY 1994 Total Request	Total Decrease
MAGLEV SYSTEMS	($3,700)	($2,500)	(-$1,200)
a. Identify, evaluate and test the safety and operational aspects related to the Transrapid maglev demonstration vehicle and other proposed maglev vehicle systems and develop safety performance standards.	[1,000]	[500]	[-500]
b. Identify, evaluate and test the safety and operational aspects related to the Transrapid maglev demonstration project guideway and control systems and develop safety performance standards.	[1,200]	[500]	[-700]
c. Based on the risk factors identified, assure system safety performance of existing and proposed maglev systems; develop safety requirements for suitable countermeasures, where required. Conduct verification testing to establish effectiveness of safety critical system components to ensure compliance with standards.	[1,500]	[1,500]	[---]

HIGH-SPEED RAIL

Amtrak presently provides high-speed rail service in the Northeast and Empire State Corridors. Very high-speed rail transportation systems are seen approaching operational status in the United States as is evidenced by the award of a franchise to the Texas High-Speed Rail Corporation to operate a 200 mph TGV system in the Texas Triangle (Dallas-Fort Worth, Houston, San Antonio). Construction is to begin in 1995. In addition, several other States have high-speed rail projects in the advanced planning stage. Therefore, research must be continued to assure FRA readiness with appropriate safety standards, regulations or rules of particular applicability.

Critical research associated with high-speed rail systems includes vehicle dynamics, collision avoidance and accident survivability, track structures, and train control and braking, all of which take on a much greater significance at the higher speeds contemplated for these systems than with conventional railroads.

Because of the rigorous and time-consuming process associated with safety rulemaking, it is essential that this supportive research work continue if timely guidance is to be given to the rulemaking process and provided to high-speed rail system developers and state transportation authorities. In furtherance of the need for timely guidance to these groups, FRA has initiated a proactive "project accompanying safety assessment" program designed to keep the States and developers advised of FRA's research findings and safety concerns as each project progresses.

The FY 1994 projects are as follows:

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Decrease
HIGH-SPEED RAIL (HSR)	($2,300)	$1,500)	(-$,800)
a. Evaluate, from a "system safety" perspective, foreign-developed advanced technology, high-speed rail (HSR) and their design provisions for suitability to U.S. operations.	[500]	[500]	[---]

b.	Evaluate the adequacy of safety aspects of signal and train control systems proposed for HSR projects and determine the safety requirements, including operation, inspection and maintenance.	[500]	[300]	[-200]
c.	Evaluate the adequacy of HSR track performance standards proposed for HSR projects and determine the safety requirements, including operation, inspection and maintenance.	[800]	[400]	[-400]
d.	Evaluate the unconventional (to U.S.) braking designs upon which HSR systems rely and determine the need for changes to braking regulations/law.	[500]	[300]	[-200]

ENVIRONMENTAL

High-speed rail projects are approaching operational status with the award of franchises for privately developed high-speed rail systems in Texas and in the Orlando, Florida area, the award of the electrification contract for the north end of the Northeast Corridor, and the planning for several additional high-speed rail systems in other States. As these systems move closer to implementation, a rigorous consideration of environmental issues becomes necessary. The provisions of the National Environmental Policy Act of 1969 (NEPA) and the regulations of the President's Council on Environmental Quality (CEQ) implementing NEPA (40 CFR 1500-1508), require Federal agencies to undertake detailed environmental reviews of proposed major actions. Because of its safety regulatory actions and expertise in high-speed rail, FRA has been required to assume the lead role in the environmental evaluation of the proposed projects.

Unlike the other major modal administrations at DOT, FRA has not developed standard procedures for the assessment of environmental impacts. There is a need for such procedures, given the growing number of environmental reviews that involve FRA and the reliance that FRA must make on States to assist in these efforts. The courts have relied on consistency of treatment of issues in environmental assessments, in determining whether the Federal agencies' efforts are adequate. It is FRA's intent to adopt or modify procedures from other DOT agencies, such as FHWA and FTA, that are applicable to high-speed rail. Certain issues, however, will require the development of entirely new methodologies. The proposed high-speed rail projects are the initial application of these technologies in this country, and certain environmentally-related issues, such as the effects from electromagnetic fields, have not been previously addressed in the environmental review of transportation projects.

The most pressing environmental issue is noise. Railroad noise emissions are regulated by the Environmental Protection Agency (EPA) (at 40 CFR 201) and EPA's standards are enforced by FRA's Office of Safety. Section 201.12(b) provides that moving locomotives manufactured after December 31, 1979 can emit a maximum noise level (Lmax) of 90 decibels weighted to the A scale (dBA) at a distance of 100 feet. This standard is a performance standard for individual pieces of equipment and does not represent the net impact of noise on noise-sensitive receptors since consideration of possible mitigation measures, such as noise barriers or width of right-of-way, is not incorporated into the regulation.

Research conducted under the auspices of the National Maglev Initiative has shown that all known high-speed rail systems (including maglev systems) will exceed the allowable noise level somewhere in the range of 160 to 180 miles per hour (mph). This results from the effect of aerodynamic noise generated by the lead vehicles which becomes the dominant noise source at speeds in excess of 150 mph. When EPA issued its regulations in the late 1970's, the domestic railroad universe was limited to trains operating at speeds less than 110 mph and, as a consequence, aerodynamic noise was not an issue that was considered. Research also indicates that there is limited likelihood for success in the near term that design modifications could significantly lessen aerodynamic noise. If not modified to account for this unique issue associated with high-speed rail systems, the EPA's regulations may preclude operation of high-speed rail systems in the United States.

FRA proposes to undertake a more extensive review of high-speed rail noise and to review and develop alternative approaches that may be appropriate to the regulation of noise emissions from high-speed rail systems. With this information, FRA will be prepared to work with the EPA in the possible revision of its railroad noise emission regulations as they apply to high-speed rail systems.

The FY 1994 projects are as follows:

	FY 1993 Enacted	FY 1994 Total Request	Total Increase
	(Dollars in Thousands)		
ENVIRONMENTAL	($500)	($500)	(---)
a. Develop standard procedures for the assessment of the environmental impacts of high-speed rail.	[300]	[200]	[-100]
b. Provide contractual support for oversight of the assessment of environmental reviews of proposed high-speed rail systems.	[200]	[---]	[-200]
c. Detailed analysis of high-speed rail noise characteristics and impacts, identification of measures for noise impact mitigation, develop alternative strategies for high-speed rail noise regulation, and support FRA in dealings with EPA to revise the railroad noise emissions standards as they relate to high-speed rail.	[---]	[300]	[+300]

BUDGET ACTIVITY - RESEARCH AND DEVELOPMENT FACILITIES

FY 1993 Enacted	$ 765,000
FY 1994 Request	$1,300,000
Total Increase in Budget Authority	$ 535,000

ENVIRONMENTAL LAW COMPLIANCE

Federal agencies are instructed by Executive Order to comply with environmental regulations of the Environmental Protection Agency (EPA) and State and local governments. FRA has recently remediated conditions at a waste water retention lagoon at the Transportation Test Center (TTC). Several other solid waste management units at TTC were analyzed and found to exceed acceptable levels of contamination. A study will be undertaken to determine the extent and nature of contamination, and the appropriate remedial measures to be implemented. The estimated total cost of compliance with all orders and regulations is now $3.35 million. Funding requested in FY 1994 is expected to complete this clean-up project.

The proposed project for FY 1994 is as follows:

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Increase
ENVIRONMENTAL LAW COMPLIANCE	[$265]	[$1,100]	[+$835]
a. Remediation of environmental hazards and restoration to compliance of solid waste management units at the Transportation Test Center.	[265]	[1,100]	[+835]

RESTORATION AND IMPROVEMENT

The FY 1994 request for the improvement of facilities and equipment at the TTC is required to preserve the Government's investment in this unique facility. This program will include upgrading and rehabilitation of building structures, basic utility supply systems, emergency response equipment, general-use track installations, and the electric traction distribution system. This work constitutes capital improvements, required by the passage of time, and includes "fair wear and tear" beyond the maintenance required to be performed by the care, custody and control agreement under which TTC is maintained for FRA.

The proposed projects for FY 1994 are as follows:

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Decrease
R&D FACILITIES RESTORATION	($500)	($200)	(-$300)
a. Replace roof and associated appurtenances on four major structures.	[320]	[---]	[-320]
b. Replace transformer cable.	[80]	[---]	[-80]
c. Renovate solar system on the Warehouse/Laboratory Facility (WLF).	[100]	[---]	[-100]
d. Replace obsolete and unreliable emergency equipment.	[---]	[160]	[+160]

e. Begin rail replacement on the Wheel/Rail mechanism (WRM) Facility.	[---]	[40]	[+40]

BUDGET ACTIVITY - ADMINISTRATION

FY 1993 Enacted	$1,950,000
FY 1994 Request	$2,076,000
Total Increase in Budget Authority	$ 126,000
Total Increase in FTEs	.5

The Deputy Associate Administrator for Technology Development and the staff of the Office of Research and Development are responsible for the management and execution of all aspects of railroad safety and guided ground transportation research to improve safety, improve barriers and stimulate beneficial advances in intercity guided ground transportation technology. This program area includes the salaries and related expenses to provide for the technical and management expertise required to administer the research and development programs described under the previous budget activities.

NON-DISCRETIONARY INCREASES **+77,000** **.5 FTE**

The increase of $77 thousand reflects the net of non-recurring costs and increases for annualization of the FY 1993 pay raise and one position allowed in the FY 1993 enacted level, normal within-grade and merit pay increases, FICA/medicare payments, health insurance premiums, federal employees compensation fund, and increased vendor and inflation costs.

NEW OR EXPANDED PROGRAMS **+49,000**

An additional $49,000 is requested for the FRA-wide computer network replacement. This amount represents the Research and Development Office costs for this project, the justification for which is found under the Office of the Administrator appropriation (on page 18).

	(Dollars in Thousands)		
	FY 1993 Enacted	FY 1994 Total Request	Total Increase
ADMINISTRATION	($1,950)	($2,076)	(+$126)
Salaries and Expenses	[1,950]	[2,027]	[+77]
FRA-wide Network Replacement	[---]	[49]	[+49]

FY 1992 ACCOMPLISHMENTS

- Completed safety assessment of the second test car, new and untried freight cars, to evaluate performance for acceptance in service.
- Completed research into roller bearing failures.
- Completed first phase of research into locomotive engineers' stress and fatigue. Initiated second phase of the project.
- Supported the nationwide Operation Lifesaver program and continued cooperative grade crossing demonstration programs for reflectorization and locomotive conspicuity.
- Completed development of a tank car repair facilities evaluation handbook.
- Completed the operation of the Gage Restraint Measurement System (GRMS) on seven Class 1 and Regional railroads.
- Demonstrated GRMS capability to the Railway Engineering - Maintenance Suppliers Association as part of the technology transfer program.
- Demonstrated the usefulness of the GRMS to measure the quality of track resulting from rehabilitation projects.
- Completed test evaluations of neutral temperature shifts on a section of curved track as part of the track buckling program.
- Completed preliminary tests to measure longitudinal rail force using the Track Loading Vehicle (TLV).
- Disseminated test results of heavy axle load experiments after 260 million gross tons of traffic.
- Co-sponsored an International Conference on "Rail Quality and Maintenance for Modern Railway Operation".
- Developed technical information to support revisions in the Federal Track Safety Standards addressing rail inspection, crosstie requirements and rail fastenings.
- Completed remediation of the environmental hazard at the waste water lagoon at the Transportation Test Center (TTC).
- Completed review and reported on German-developed Magnetic Levitation Train Safety Requirements and their suitability for application in the United States.

- Completed preliminary investigation and reported on the safety issues associated with high-speed guided ground transportation's shared use of existing rights-of-way.
- Completed an assessment and reported on the state-of-the-art of tilting-train technologies and their associated trip-time enhancement characteristics.
- Completed technical recommendations on content material for preparation of "rules of particular applicability" for the Orlando Maglev Demonstration and Texas TGV Projects.
- Completed review and reported on German Transrapid Maglev Technical Readiness for Application determination.
- Completed investigation and reported on the electromagnetic fields associated with the Transrapid TR07 maglev system.
- Completed a comparative analysis of German national safety codes/standards associated with Transrapid maglev safety requirements and other codes and U.S. practices.
- Completed study of and reported on collision avoidance and accident survivability considerations for high-speed guided ground transportation in a four-volume reference report.
- Completed initial animal laboratory investigation into the potential for biological effects from Transrapid maglev electromagnetic fields.
- Awarded four contracts for System Concept Definition of maglev systems.
- Conducted a second national workshop on maglev technology assessment, at Argonne National Laboratory (attended by over 200 people).
- Re-established with Japan a research data exchange on maglev and high-speed rail.
- Issued annual report on FY 1991 activities of the NMI.
- Completed many of the 27 Maglev Technology Assessment contracts awarded in FY 1991.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

CONRAIL LABOR PROTECTION

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0707-0-1-603		1992 Actual	1993 Estimate	1994 Estimate
Financing:				
21.40	Unobligated balance available, start of year	...	-8	...
24.40	Unobligated balance available, end of year	8	...	...
25.00	Unobligated balance expiring	-8	8	...
39.00	Budget authority	...	...	...
Relation of obligations to outlays:				
71.00	Total obligations	...	...	...
77.00	Adjustments in expired accounts	-8	...	...
90.00	Outlays	-8	...	...

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DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

CONRAIL LABOR PROTECTION

PROGRAM AND PERFORMANCE

Funds in this program were provided for benefits to Conrail employees deprived of employment because of workforce reductions and other actions. This program no longer exists since Conrail has been returned to the private sector.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

[CONRAIL COMMUTER TRANSITION ASSISTANCE]

[For necessary capital expenses of Conrail commuter transition assistance, not otherwise provided for, $7,000,000 to remain available until expended.] (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

CONRAIL COMMUTER TRANSITION ASSISTANCE

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0747-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
10.00 Total obligations (object class 41.0)	13,600	7,000	...
Financing:			
40.00 Budget authority (appropriation)	13,600	7,000	...
Relation of obligations to outlays:			
71.00 Total obligations	13,600	7,000	...
72.40 Obligated balance, start of year	15,346	21,440	25,312
74.40 Obligated balance, end of year	-21,440	-25,312	-6,257
90.00 Outlays	7,506	3,128	19,055

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

CONRAIL COMMUTER TRANSITION ASSISTANCE

PROGRAM AND PERFORMANCE

These funds helped to defray the one-time only start-up costs of commuter service and other transition expenses connected with the transfer of rail commuter services from Conrail to other operators. Between 1986 and 1993 funds were appropriated to fund commuter rail and bridge improvements in the Philadelphia, Pennsylvania region. No additional funds are requested in 1994.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

CONRAIL COMMUTER TRANSITION ASSISTANCE

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0747-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct obligations:			
41.0 Grants, subsidies, and contributions	13,600	7,000	...
99.9 Total obligations	**13,600**	**7,000**	**...**

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

NORTHEAST CORRIDOR IMPROVEMENT PROGRAM

For necessary expenses related to Northeast Corridor improvements authorized by Title VII of the Railroad Revitalization and Regulatory Reform Act of 1976, as amended (45 U.S.C. 851 et seq.) and the Rail Safety Improvement Act of 1988, $204,100,000, to remain available until expended. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

NORTHEAST CORRIDOR IMPROVEMENT PROGRAM

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0123-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
Direct program:			
00.01 Washington, DC-New York, NY........	50,000	36,425	49,000
00.02 New York, NY-Boston, MA............	160,233	177,342	155,100
00.03 System engineering, program management and administration....	...	67	...
00.04 Public/private grade crossing elimination......................	...	7,722	...
10.00 Total obligations................	210,233	221,556	204,100
Financing:			
17.00 Recovery of prior year obligations..	-10,734	...	...
21.40 Unobligated balance available, start of year....................	-11,955	-17,456	...
24.40 Unobligated balance available, end of year..........................	17,456	...	...
40.00 Budget authority (appropriation)	205,000	204,100	204,100
Relation of obligations to outlays:			
71.00 Total obligations..................	210,233	221,556	204,100
72.40 Obligated balance, start of year...	228,024	254,441	331,856
74.40 Obligated balance, end of year.....	-254,441	-331,856	-306,079
78.00 Adjustments in unexpired accounts..	-10,734	...	...
90.00 Outlays	173,083	144,141	229,877

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

NORTHEAST CORRIDOR IMPROVEMENT PROGRAM

PROGRAM AND PERFORMANCE

Funds were provided in 1992 and 1993 to continue the upgrade of passenger rail service in the corridor between Washington, D.C. and Boston, MA. In 1994, $204,100,000 is requested to continue the work of rehabilitating and upgrading the corridor.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

NORTHEAST CORRIDOR IMPROVEMENT PROGRAM

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscretionary Chgs	FY 1994 New/Expanded Programs	FY 1994 Request
Northeast Corridor Improvements	$ 210,233	$ 204,100	$ 0	$ 0	$ 204,100
TOTAL - NECIP	$ 210,233	204,100	$ 0	$ 0	$ 204,100

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

NORTHEAST CORRIDOR IMPROVEMENT PROGRAM

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	APPROPRIATION TOTAL
FY 1993 BASE	$204,100
NONDISCRETIONARY CHANGES:	0
NEW OR EXPANDED PROGRAMS:	0
TOTAL ADJUSTMENTS to FY 1993 BASE	0
TOTAL FY 1994 REQUEST - NECIP	$204,100

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

NORTHEAST CORRIDOR IMPROVEMENT PROGRAM

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0123-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
FEDERAL RAILROAD ADMINISTRATION			
25.0 Other services	210,233	5,841	776
41.0 Grants, subsidies, and contributions	...	207,993	203,324
99.0 Sub-total, direct obligations	**210,233**	**213,834**	**204,100**
ALLOCATION TO FEDERAL HIGHWAY ADMINISTRATION			
41.0 Grants, subsidies and contributions	...	7,722	...
99.9 Total obligations	**210,233**	**221,556**	**204,100**

BUDGET ACTIVITY - NORTHEAST CORRIDOR IMPROVEMENT PROGRAM

FY 1993 Enacted	$204,100,000
FY 1994 Request	$204,100,000
Total Increase in Budget Authority	$ -0-

Funding is requested for continuing New York City/Boston High Speed Rail improvements and New York City/Washington infrastructure improvements which have been funded in prior years.

Washington to New York Improvements $49,000,000

This funding will be used to continue improvements on the existing infrastructure, especially upgrading electric traction systems and replacing substations. This requires expediting replacement of critical components of the outdated 11.5kV 25Hz system. Other projects to be funded include rehabilitation of New York tunnels, Penn Station track improvements, and communication and signal upgrades.

Boston-New York City Rail Improvements $155,100,000

Funding for high-speed rail improvements in this portion of the Northeast rail corridor is concentrated on electrification of the New Haven to Boston line to help Amtrak achieve 3-hour trip times between Boston and New York. In addition, Amtrak will begin to place orders for new generation of train sets to provide express service on the Northeast Corridor between Boston and Washington to take maximum advantage of the electrification and other improvements underway.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION

To enable the Secretary of Transportation to make grants to the National Railroad Passenger Corporation [for operating losses incurred by the Corporation, capital improvements, and labor protection costs] authorized by 45 U.S.C. 601, to remain available until expended, [$496,000,000] $633,000,000, of which [$331,000,000] $468,000,000 shall be available for operating losses incurred by the Corporation [and for labor protection costs] including $137,000,000 for mandatory passenger rail service payments, and of which $165,000,000, not to become available until July 1, [1993] 1994, shall be available for capital improvements: **Provided**, That none of the funds herein appropriated shall be used for lease or purchase of passenger motor vehicles or for the hire of vehicle operators for any officer or employee, other than the president of the Corporation, excluding the lease of passenger motor vehicles for those officers or employees while in official travel status: **Provided further**, That the Secretary shall make no commitments to guarantee new loans or loans for new purposes under 45 U.S.C. 602 in fiscal year [1993] 1994: **Provided further**, That no funds are required to be expended or reserved for expenditure pursuant to 45 U.S.C. 601(e). (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0704-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
Program by activities:				
	Direct program:			
00.01	Operating grants.................	331,000	331,000	468,000 1/
00.02	Capital grants...................	173,300	199,960	165,000
10.00	Total obligations (object class 41.0).......................	504,300	530,960	633,000
	Financing:			
21.40	Unobligated balance available, start of year..................	-33,260	-34,960	...
24.40	Unobligated balance available, end of year...................	34,960	...	...
40.00	Budget authority (appropriation).	506,000	496,000	633,000
Relation of obligations to outlays:				
71.00	Total obligations................	504,300	530,960	633,000
72.40	Obligated balance, start of year.	5,296	1,629	154,886
74.40	Obligated balance, end of year...	-1,629	-154,886	-170,489
90.00	Outlays..........................	507,967	377,703	617,397

1/ Includes $137 million for Mandatory Passenger Rail Service Payments which were under a separate appropriation in FY 1992 and FY 1993.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION 1/

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0704-1-1-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
Direct program:			
00.01 Operating grants	...	...	...
00.02 Capital grants	...	187,844	...
10.00 Total obligations (object class 41.0)	...	187,844	...
Financing:			
21.40 Unobligated balance available, start of year	...	...	...
24.40 Unobligated balance available, end of year	...	...	...
40.00 Appropriation	...	187,844	...
Relation of obligations to outlays:			
71.00 Total obligations	...	187,844	...
72.40 Obligated balance, start of year.	...	...	159,667
74.40 Obligated balance, end of year	...	-159,167	-28,176
90.00 Outlays	...	28,177	131,491

1/ FY 1993 Stimulus Funding.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION

PROGRAM AND PERFORMANCE

The National Railroad Passenger Corporation (Amtrak) was established in 1970 through the Rail Passenger Service Act. Amtrak is a quasi-private corporation with all Board members effectively appointed by the Executive Branch of the Federal Government.

OPERATING GRANTS	-	Provides support for the on-going operations of Amtrak including mandatory passenger rail service payments.
CAPITAL GRANTS	-	Provides support for Amtrak capital requirements.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK)

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscre-tionary Chgs	FY 1994 New/Expanded Programs 1/	FY 1994 Request
Operating Grants	$ 331,000	$ 331,000	$ 0	$ 137,000	$ 468,000
Capital Grants	173,300	165,000	0	0	165,000
TOTAL - AMTRAK	$ 504,300	$ 496,000	$ 0	$ 137,000	$ 633,000

1/ Increase is for Mandatory Payments (under separate appropriation in FY 1992 and FY 1993).

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK)

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	OPERATING GRANTS	CAPITAL GRANTS	APPROPRIATION TOTAL
FY 1993 BASE	$331,000	$165,000	$496,000
NEW OR EXPANDED PROGRAMS:	137,000 1/	0	137,000
SUBTOTAL - NEW OR EXPANDED PROGRAMS	137,000	0	137,000
TOTAL ADJUSTMENTS to FY 1993 BASE	137,000	0	137,000
TOTAL FY 1994 REQUEST - AMTRAK	$468,000	$165,000	$633,000

1/ Increase for Mandatory Payments (under separate appropriation in FY 1992 and FY 1993).

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0704-0-1-401	1992 Actual	1993 Estimate	1994 1/ Estimate
Direct obligations:			
41.0 Grants, subsidies, and contributions	504,300	530,960	633,000
99.9 Total obligations	504,300	530,960	633,000

1/ Includes $137 million for Mandatory Passenger Rail Service Payments which were under a separate appropriation in FY 1992 and FY 1993.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION 1/

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0704-1-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct obligations:			
41.0 Grants, subsidies, and contributions	...	187,844	...
99.9 **Total obligations**	...	187,844	...

1/ FY 1993 Stimulus Funding.

FY 1994 REQUEST HIGHLIGHTS

The FY 1994 request of $633 million is comprised of $468 million for operating grants, including $137 million for mandatory passenger rail service payments, and $165 million for capital grants.

BUDGET ACTIVITY - OPERATING GRANTS

FY 1993 Enacted	$331,000,000
FY 1994 Request	$468,000,000
Total Increase In Budget Authority	$137,000,000

OPERATIONS ($468,000,000)

The proposed operating budget of $468 million will require Amtrak to continue to pursue aggressively all revenue-raising and cost-saving opportunities. In addition to higher traffic levels expected as a result of the continued economic recovery, the budget request also takes into account cost savings and productivity improvements as a result of labor management initiatives, and further cost savings due to modernization of Amtrak's management systems. These include: (1) streamlining operations and work assignments at equipment maintenance facilities; (2) automating the Maintenance of Equipment Department to contract and manage all fleet maintenance activities; (3) improving the efficiency of managing agreement and nonagreement personnel; and (4) improving equipment availability and reliability.

In FY 1993, the mandatory passenger rail service payments were funded in a separate appropriation. In FY 1994, these payments are included as part of Amtrak's total operating grant request.

BUDGET ACTIVITY - CAPITAL GRANTS

FY 1993 Enacted	$165,000,000
FY 1994 Request	$165,000,000
Total Increase In Budget Authority	$ 0

For FY 1994, a total of $165 million is requested. The program includes the purchase of new equipment, the heavy equipment overhaul program, mandated modifications of equipment, and certain fixed facility upgrades. Amtrak will continue the purchase of Viewliner equipment to replace the aging "Heritage" fleet. Amtrak will also continue to replace its diesel locomotive fleet and begin replacement of the auto rack cars. Roadrailer equipment will be purchased to handle a growing mail business. Amtrak will also continue heavy overhauls of cars and locomotives and the toilet holding tank modification and retrofit program.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

[MANDATORY PASSENGER RAIL SERVICE PAYMENTS]

[To enable the Secretary of Transportation to pay obligations and liabilities of the National Railroad Passenger Corporation, $146,000,000, to remain available until expended: **Provided**, That this amount is available only for the payment of: (1) tax liabilities under section 3221 of the Internal Revenue Code of 1986 due in fiscal year 1993 in excess of amounts needed to fund benefits for individuals who retired from the National Railroad Passenger Corporation and for their beneficiaries; (2) obligations of the National Railroad Passenger Corporation under section 358(a) of title 45, United States Code, due in fiscal year 1993 in excess of its obligations calculated on an experience-rated basis; and (3) obligations of the National Railroad Passenger Corporation due under section 3321 of the Internal Revenue Code of 1986.] (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

MANDATORY PASSENGER RAIL SERVICE PAYMENTS

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0717-0-1-401	1992 Actual	1993 Estimate	1994 1/ Estimate
Program by activities:			
10.00 Total obligations (object class 41.0)	150,200	146,000	...
Financing:			
39.00 Budget authority	150,200	146,000	...
Budget Authority:			
40.00 Appropriation	145,000	146,000	...
50.00 Reappropriation	5,200	...	...
Relation of obligations to outlays:			
71.00 Total obligations	150,200	146,000	...
90.00 Outlays	150,200	146,000	...

1/ Included in Amtrak appropriation in FY 1994.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

MANDATORY PASSENGER RAIL SERVICE PAYMENTS

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscretionary Chgs 1/	FY 1994 New/Expanded Programs	FY 1994 Request
Mandatory Payments	$ 150,200	$ 146,000	$ (146,000)	$ 0	$ 0
TOTAL - MANDATORY PAYMENTS	$ 150,200	$ 146,000	$ (146,000)	$ 0	$ 0

1/ Included in AMTRAK request in FY 1994 President's Budget ($137 million).

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Liquidating Account)

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0720-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Financing:			
39.00 Budget authority (gross)	...	...	...
Budget authority:			
Permanent:			
68.00 Spending authority from offsetting collections	...	103	518
68.47 Portion applied to debt reduction.	...	-103	-518
68.90 Spending authority from offsetting collections (total)	...	...	...
Relation of obligations to outlays:			
71.00 Total obligations	...	...	...
87.00 Outlays (gross)	...	...	...
Adjustments to budget authority and outlays:			
Deductions from offsetting collections:			
88.40 Non-Federal sources	...	-103	-518
89.00 Budget authority (net)	...	-103	-518
90.00 Outlays (net)	...	-103	-518

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Liquidating Account)

STATUS OF DIRECT LOANS
(Dollars in Thousands)

Identification Code 69-0720-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Cumulative balance of direct loans outstanding:			
1210 Outstanding, start of year...........	7,000	7,000	7,000
1290 Outstanding, end of year.............	7,000	7,000	7,000

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DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Liquidating Account)

REVENUE AND EXPENSE
(Dollars in Thousands)

Identification Code 69-0720-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
0111 Revenue	493	689	476
0112 Expense	...	...	...
0119 Net income	493	689	476

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Liquidating Account)

FINANCIAL CONDITION
(Dollars in Thousands)

Identification Code 69-0720-0-1-401	1991 Actual	1992 Actual	1993 Estimate	1994 Estimate
Assets:				
1510 Loans receivable: Public: direct loans	7,000	7,000	7,000	7,000
1999 Total assets	7,000	7,000	7,000	7,000
Equity:				
3199 Appropriated fund equity: Invested capital	7,000	7,000	7,000	7,000
3999 Total equity	7,000	7,000	7,000	7,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

[AMTRAK CORRIDOR IMPROVEMENT LOANS PROGRAM ACCOUNT]

[For the cost of direct loans to the Chicago, Missouri and Western Railroad, or its successors, to replace existing jointed rail with continuous welded rail between Joliet and Granite City, Illinois, $844,200: **Provided,** That such costs, including the cost of modifying such loans, shall be defined in section 502 of the Congressional Budget Act of 1974: **Provided further,** That these funds are available to subsidize gross obligations for the principal amount of direct loans not to exceed $3,500,000: **Provided further**, That any loan authorized under this section shall be structured with a maximum 20-year payment at an annual interest rate of 4 per centum: **Provided further**, That the Federal Government shall hold a first and prior purchase money security interest with respect to any materials to be acquired with Federal funds: **Provided further**, That any such loan shall be matched on a dollar-for-dollar basis by the State of Illinois: **Provided further,** That any such loan shall be made available no later than thirty days after enactment of this Act.] (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Program Account)

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0725-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
00.01 Direct loan subsidy	844	844	...
10.00 Total obligations (object class 41.0)	844	844	...
Financing:			
25.00 Unobligated balance expiring........	2,656	...	...
40.00 Budget authority (appropriation)....	3,500	844	...
Relation of obligations to outlays:			
71.00 Total obligations..................	844	844	...
90.00 Outlays............................	844	844	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Program Account)

LOAN LEVELS
(Dollars in Thousands)

Identification Code 69-0725-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct loan levels supportable by subsidy budget authority:			
1150 Direct loan levels	3,500	3,500	...
1159 Total direct loan levels	3,500	3,500	...
Direct loan subsidy (in percent):			
1320 Subsidy rate	24.11	24.11	...
1329 Weighted average subsidy rate	24.11	24.11	...
Direct loan subsidy:			
1330 Subsidy budget authority	844	844	...
1339 Total subsidy budget authority	844	844	...
Direct loan subsidy outlays:			
1340 Subsidy outlays	844	844	...
1349 Total subsidy outlays	844	844	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS PROGRAM ACCOUNT

PROGRAM AND PERFORMANCE

Amtrak corridor improvement loans.--In 1991, 1992 and 1993, loan funds were provided for the Chicago, Missouri and Western Railroad, or its successors, to replace jointed rail with continuous welded rail between Joliet and Granite City, Illinois. No funds are requested for this program in 1994.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Program Account)

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0725-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
41.0	Grants, subsidies, and contributions	844	844	...
99.9	**Total obligations**	**844**	**844**	**...**

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Financing Account)

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-4164-0-3-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
00.01 Direct loans	3,500	3,500	...
00.02 Interest to Treasury	98	301	...
10.00 Total obligations (object class 33.0)	3,598	3,801	...
Financing:			
39.00 Financing authority (gross)	3,598	3,801	...
Financing authority:			
67.15 Authority to borrow (indefinite)	2,754	2,957	...
68.00 Spending authority from offsetting collections	844	844	...
Relation of obligations to financing disbursements:			
71.00 Total obligations	3,598	3,801	...
72.40 Obligated balance, start of year	...	1,198	...
74.40 Obligated balance, end of year	-1,198	...	...
87.00 Financing disbursements (gross)	2,400	4,999	...
Adjustments to financing authority and disbursements:			
Deductions for offsetting collections:			
88.00 Federal funds	-844	-844	...
89.00 Financing authority (net)	2,754	2,957	...
90.00 Financing disbursements (net)	1,556	4,155	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Financing Account)

STATUS OF DIRECT LOANS
(Dollars in Thousands)

Identification Code 69-4164-0-3-401	1992 Actual	1993 Estimate	1994 Estimate
Position with respect to appropriations act limitation on obligations:			
1111 Limitation on direct loans	3,500	3,500	...
1150 Total direct loan obligations	3,500	3,500	...
Cumulative balance of direct loans outstanding:			
1210 Outstanding, start of year	...	2,302	7,000
1231 Disbursements: Direct loan disbursements	2,302	4,698	...
1290 Outstanding, end of year	2,302	7,000	7,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

AMTRAK CORRIDOR IMPROVEMENT LOANS
(Financing Account)

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-4164-0-1-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
33.0	Investments and loans	3,500	3,500	...
43.0	Interest and dividends	98	301	...
99.9	**Total obligations**	**3,598**	**3,801**	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS
(Liquidating Account)

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-4411-0-3-401		1992 Actual	1993 Estimate	1994 Estimate
Program by activities:				
10.00	Total obligations (object class 33.0)	251	...	...
Financing:				
17.00	Recovery of prior year obligations.	...	-100	-100
	Unobligated balance available, start of year:			
21.90	Treasury balance.	-4	-1	-1
21.91	U.S. securities: Par value	-600	-2,480	-2,580
	Unobligated balance available, end of year:			
24.90	Treasury balance.................	1	1	1
24.91	U.S. securities: Par value......	2,480	2,580	2,680
31.00	Redemption of debt................	-2,130	...	...
39.00	Budget authority (gross)	...	...	...
Budget authority:				
68.00	Spending authority from offsetting collections......................	22,892	7,041	6,669
68.47	Portion applied to debt reduction..	-22,892	-7,041	-6,669
68.90	Spending authority from offsetting collections (total).............	...	...	...
Relation of obligations to outlays:				
71.00	Total obligations..................	251	...	...
72.47	Obligated balance, start of year: Authority to borrow.............	6,292	386	...
74.47	Obligated balance, end of year: Authority to borrow.............	-386	...	...
78.00	Adjustments in unexpired accounts..	...	-100	-100
87.00	Outlays (gross)....................	6,157	286	-100

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS
(Liquidating Account)

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-4411-0-3-401		1992 Actual	1993 Estimate	1994 Estimate
Adjustments to budget authority and outlays:				
	Deductions from offsetting collections:			
88.40	Non-Federal sources..............	-22,892	-7,041	-6,669
89.00	Budget authority (net)...........	-22,892	-7,041	-6,669
90.00	Outlays (net)....................	-16,735	-6,755	-6,769

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS
(Liquidating Account)

STATUS OF DIRECT LOANS
(Dollars in Thousands)

Identification Code 69-4411-0-3-401		1992 Actual	1993 Estimate	1994 Estimate
Cumulative balance of direct loans outstanding:				
1210	Outstanding, start of year......	169,579	85,470	82,192
1231	Disbursements: Direct loan disbursements.................	...	70	...
	Repayments:			
1251	Repayments and prepayments......	-4,050	-3,348	-3,241
1263	Write-offs for default: Direct loans........................	-80,059	...	...
1290	Outstanding, end of year........	85,470	82,192	78,951
3310	Outstanding agency debt, start of year.................	21,292	19,077	16,854
3350	Repayments and prepayments......	-2,215	-2,223	-2,236
3390	Outstanding agency debt, end of year...................	19,077	16,854	14,618

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION & IMPROVEMENT FINANCING FUNDS
(Liquidating Account)

REVENUE & EXPENSE
(Dollars in Thousands)

Identification Code 69-4411-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct obligations:			
0111 Revenue......................	71	71	71
0112 Expense......................	..	..	..
0119 Net Income....................	71	71	71

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS
(Liquidating Account)

FINANCIAL CONDITION
(Dollars in Thousands)

Identification Code 69-4411-0-3-401	1991 Actual	1992 Actual	1993 Estimate	1994 Estimate
Assets:				
1000 Fund balance with Treasury and cash: Fund balance with Treasury.............	6,296	387	200	1
1110 Accounts receivable: Public..	197	...	...	...
1400 Investments: Treasury securities, par............	600	2,480	2,580	2,680
1510 Loans receivable: Public: direct loans...............	190,870	104,547	102,323	...
1999 Total assets..............	197,963	107,414	105,103	2,681
Equity:				
Appropriated fund equity: 3000 Unexpended financed budget authority (accrual basis): Unexpended appropriations.	6,296	387	200	...
3199 Invested capital............	191,667	107,127	104,903	...
3999 Total equity..............	197,963	107,514	105,103	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION & IMPROVEMENT FINANCING FUNDS
(Liquidating Account)

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-4411-0-3-401	1992 Actual	1993 Estimate	1994 Estimate
Direct obligations:			
33.0 Investments and loans	251	...	...
99.9 Total obligations	251	...	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT [FINANCING FUNDS] PROGRAM ACCOUNT

The Secretary of Transportation is authorized to issue to the Secretary of the Treasury notes or other obligations pursuant to section 512 of the Railroad Revitalization and Regulatory Reform Act of 1976 (Public Law 94-210), as amended, in such amounts and at such times as may be necessary to pay any amounts required pursuant to the guarantee of the principal amount of obligations under sections 511 through 513 of such Act, such authority to exist as long as any such guaranteed obligation is outstanding: **Provided**, That no new loan guarantee commitments shall be made during fiscal year [1993] 1994: **Provided further**, That, notwithstanding any other provision of law, for fiscal year 1989 and each fiscal year thereafter all amounts realized from the sale of notes or securities sold under authority of this section shall be considered as current year domestic discretionary outlay offsets and not as "asset sales" or "loan prepayments" as defined by section 257(12) of the Balanced Budget and Emergency Deficit Control Act of 1985, as amended: **Provided further**, That any underwriting fees and related expenses shall be derived solely from the proceeds of the sales[: **Provided further**, That to enable the Secretary of Transportation to pay obligations and liabilities of the Columbus and Greenville Railway under sections 505 and 511 of the Railroad Revitalization and Regulatory Reform Act of 1976 resulting from the waiver of obligations and liabilities as authorized by section 349 of this Act, $411,578]. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS
(Program Account)

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0750-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
10.00 Total obligations (object class 41.0)............................	...	412	...
Financing:			
40.00 Budget authority (appropriation)...	...	412	...
Relation of obligations to outlays:			
71.00 Total obligations..................	...	412	...
90.00 Outlays............................	...	412	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION & IMPROVEMENT FINANCING FUNDS
(Program Account)

LOAN LEVELS
(Dollars in Thousands)

Identification Code 69-0750-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct loan levels supportable by subsidy budget authority:			
Direct loan subsidy (in percent):			
1329 Weighted average subsidy rate........	...	39.88	...
Direct loan subsidy:			
1339 Total subsidy budget authority.......	...	412	...
Direct loan subsidy outlays:			
1349 Total subsidy outlays................	...	412	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS

PROGRAM AND PERFORMANCE

Section 505-Redeemable preference shares.--Authority for the section 505 redeemable preference shares program expired on September 30, 1988. However, outlays will continue on section 505 projects included in prior year appropriations. The account also reflects repayments of principal plus interest.

Section 511-Loan repayments.--This program reflects repayments of principal and interest on outstanding borrowings by the railroads to the Federal Financing Bank under the section 511 loan guarantee program. No new commitments will be made in this program in 1994.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION & IMPROVEMENT FINANCING FUNDS
(Program Account)

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0750-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct obligations:			
41.0 Grants, subsidies, and contributions	...	412	...
99.9 Total obligations	...	412	...

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION & IMPROVEMENT FINANCING FUNDS
(Financing Account)

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-4420-0-3-401		1992 Actual	1993 Estimate	1994 Estimate
Program by activities:				
00.01	Direct loans	...	723	310
00.02	Interest payment to Treasury	...	...	23
10.00	Total obligations	...	723	333
Financing:				
39.00	Financing authority (gross)	...	723	333
Financing authority:				
67.15	Authority to borrow (indefinite)	...	311	333
68.00	Spending authority from offsetting collections	...	412	...
Relation of obligations to outlays:				
71.00	Total obligations	...	723	333
87.00	Outlays (gross)	...	723	333
Adjustments to financing authority and disbursements:				
	Deductions for offsetting collections:			
88.00	Payments from program account	...	-412	...
89.00	Financing authority (net)	...	311	333
90.00	Financing disbursements (net)	...	311	333

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS
(Financing Account)

STATUS OF DIRECT LOANS
(Dollars in Thousands)

Identification Code 69-4420-0-3-401	1992 Actual	1993 Estimate	1994 Estimate
Position with respect to appropriations act limitation on obligations:			
1131 Direct loan obligations exempt from limitation..............	...	723	310
1150 Total direct loan obligations...	...	723	310
Cumulative balance of direct loans outstanding:			
1210 Outstanding, start of year......	...	...	723
1231 Disbursements: Direct loan disbursements.................	...	723	310
1290 Outstanding, end of year..........	...	723	1,033

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION & IMPROVEMENT FINANCING FUNDS
(Financing Account)

REVENUE & EXPENSE
(Dollars in Thousands)

Identification Code 69-4420-0-1-401	1992 Actual	1993 Estimate	1994 Estimate
Direct obligations:			
0111 Revenue	...	412	...
0112 Expense	...	...	...
0119 Net Income	**...**	**412**	**...**

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION AND IMPROVEMENT FINANCING FUNDS
(Financing Account)

FINANCIAL CONDITION
(Dollars in Thousands)

Identification Code 69-4420-0-3-401	1991 Actual	1992 Actual	1993 Estimate	1994 Estimate
Assets:				
Fund balance with Treasury and cash:				
1000 Fund balance with Treasury	...	...	...	23
Cumulative balance of loans, credit reform value:				
1800 Loans receivable, gross	...	...	723	1,033
1999 Total assets	...	...	723	1,056
Liabilities:				
2615 Intragovernmental debt: debt to Treasury	...	...	311	644
2999 Total liabilities	...	...	311	644
Equity:				
3200 Appropriated fund equity: Appropriated capital	...	...	412	412
3999 Total equity	...	...	412	412

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

RAILROAD REHABILITATION & IMPROVEMENT FINANCING FUNDS
(Financing Account)

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-4420-0-3-401	1992 Actual	1993 Estimate	1994 Estimate
Direct obligations:			
33.0 Investments and loans	...	723	333
99.9 Total obligations	...	723	333

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

[NATIONAL MAGNETIC LEVITATION PROTOTYPE DEVELOPMENT]
[(LIMITATION ON OBLIGATIONS)]
[(HIGHWAY TRUST FUND)]

[None of the funds in this Act shall be available for the planning or execution of the National Magnetic Levitation Prototype Development program as defined in subsections 1036(b) and 1036(d)(1)(A) of the Intermodal Surface Transportation Efficiency Act of 1991.] (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

NATIONAL MAGNETIC LEVITATION PROTOTYPE DEVELOPMENT

PROGRAM AND PERFORMANCE

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, section 1036, establishes a national magnetic levitation prototype development program. This program is financed by the Trust Fund Share of High-Speed Ground Transportation Development.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

(LIQUIDATION OF CONTRACT AUTHORIZATION)
(HIGHWAY TRUST FUND)

For payment of obligations incurred in carrying out the provisions of the High-Speed Ground Transportation program as defined in subsections 1036(c) and 1036(d)(1)(B) of the Intermodal Surface Transportation Efficiency Act of 1991, [$2,000,000] $4,000,000, to be derived from the Highway Trust Fund and to remain available until expended: **Provided**, That none of the funds in this Act shall be available for the implementation or execution of programs the obligations for which are in excess of $5,000,000 for the "High-Speed Ground Transportation Development" program as defined in subsections 1036(c) and 1036(d)(1)(B). (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-9973-0-7-401		1992 Actual	1993 Estimate	1994 Estimate
Program by activities:				
10.00	Total obligations (object class 41.0)	...	5,000	5,000
Financing:				
21.49	Unobligated balance available, start of year	...	-5,000	-50,000
24.49	Unobligated balance available, end of year	5,000	50,000	150,000
39.00	Budget authority	5,000	50,000	105,000
Budget authority:				
Current:				
40.00	Appropriation	...	2,000	4,000
40.49	Portion applied to liquidate contract authority	...	-2,000	-4,000
43.00	Appropriation (total)	...	...	...
Permanent:				
69.10	Contract authority	5,000	50,000	105,000
Relation of obligations to outlays:				
71.00	Total obligations	...	5,000	5,000
72.49	Obligated balance, start of year: Contract authority	...	...	3,000
74.49	Obligated balance, end of year: Contract authority	...	-3,000	-4,000
90.00	Outlays	...	2,000	4,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

(LIQUIDATION OF CONTRACT AUTHORIZATION)
(HIGHWAY TRUST FUND)

PROGRAM AND PERFORMANCE

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, section 1036, establishes a program of research, development, and demonstrations of high-speed ground transportation technologies. Funding is to undertake technologies as authorized by sections 1036(c) and 1036(d)(1)(B) of the ISTEA.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT
(Parent Account)

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscretionary Chgs	FY 1994 New/Expanded Programs	FY 1994 Request
Technology Development (High-Speed Rail)	$ 0	$ 5,000	$ 0	$ 0	$ 5,000
TOTAL - Trust Fund Share of HSGT Development (Contract Authority)	$ 0	$ 5,000	$ 0	$ 0	$ 5,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT
(PARENT ACCOUNT)

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	TECHNOLOGY DEVELOPMENT	APPROPRIATION TOTAL
FY 1993 BASE	$5,000	$5,000
NONDISCRETIONARY CHANGES:	0	0
NEW OR EXPANDED PROGRAMS:	0	0
TOTAL ADJUSTMENTS to FY 1993 BASE	0	0
TOTAL FY 1994 REQUEST - Trust Fund Share of HSGT Development	$5,000	$5,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH SPEED GROUND TRANSPORTATION DEVELOPMENT

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-9973-0-7-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
41.0	Grants, subsidies, and contributions	...	5,000	5,000
99.0	**Total obligations**	...	5,000	5,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

(LIQUIDATION OF CONTRACT AUTHORIZATION)
(HIGHWAY TRUST FUND)

In addition to amounts otherwise available under this heading, and subject to the same terms and conditions, $100,000,000 for payment of obligations incurred in carrying out section 1036(a) of the Intermodal Surface Transportation Efficiency Act of 1991 and other High-Speed Ground Transportation Development activities, to remain available until expended and to be derived from the Highway Trust Fund: **Provided**, That $100,000,000 shall be paid from the Highway Trust Fund to the Federal Railroad Administration's High-Speed Ground Transportation Development account.

[Note: Authorizing legislation is required.]

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-9973-7-7-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
10.00 Total obligations..................	...	...	100,000
Financing:			
24.49 Unobligated balance available, end of year..........................	...	...	-100,000
39.00 Budget authority....................	...	...	...
Budget Authority:			
40.00 Appropriation......................	...	...	100,000
40.49 Portion applied to liquidate contract authority...............	...	...	-100,000
43.00 Appropriation (total)..............	...	...	...
Relation of obligations to outlays:			
71.00 Total obligations..................	...	...	100,000
90.00 Outlays	...	...	100,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

(LIQUIDATION OF CONTRACT AUTHORIZATION)
(HIGHWAY TRUST FUND)

PROGRAM AND PERFORMANCE

This account provides for the trust fund share of the High-Speed Ground Transportation Development program, which is financed from both general funds and trust funds. The narrative statement on the program appears with the general fund account.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscretionary Chgs	FY 1994 New/Expanded Programs	FY 1994 Request
Technology Development (Maglev Prototype)	$ 0	$ 0	$ 0	$ 27,873	$ 27,873
Corridor Implementation	0	0	0	72,127	72,127
TOTAL - Trust Fund Share of HSGT Development (Contract Authority)	$ 0	$ 0	$ 0	$ 100,000	$ 100,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	TECHNOLOGY DEVLEOPMENT	CORRIDOR IMPLEMENTATION	APPROPRIATION TOTAL
FY 1993 BASE	$0	$0	$0
NONDISCRETIONARY CHANGES:	0	0	0
NEW OR EXPANDED PROGRAMS:			
Technology Development (Maglev Prototype)	27,873	0	27,873
Corridor Implementation	0	72,127	72,127
SUBTOTAL - NEW OR EXPANDED PROGRAMS	27,873	72,127	100,000
TOTAL ADJUSTMENTS to FY 1993 BASE	27,873	72,127	100,000
TOTAL FY 1994 REQUEST - Trust Fund Share of HSGT Development	$27,873	$72,127	$100,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

TRUST FUND SHARE OF HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-9973-7-7-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
25.2	Other services	...	...	13,373
41.0	Grants, subsidies, and contributions	...	...	86,627
99.0	Total obligations	...	...	100,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

For necessary expenses for High-speed ground transportation development, to remain available until expended, $35,000,000: **Provided**, That no more than $135,000,000 of budget authority shall be available for these purposes.

[Note: Authorizing legislation is required.]

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

PROGRAM AND FINANCING
(Dollars in Thousands)

Identification Code 69-0722-7-1-401	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
10.00 Total obligations	...	...	135,000
Financing:			
39.00 Budget authority (gross)	...	...	135,000
Budget authority:			
Current:			
40.00 Appropriation	...	...	35,000
Permanent:			
68.00 Spending authority from offsetting collections	...	...	100,000
Relation of obligations to outlays:			
71.00 Total obligations	...	...	135,000
74.40 Obligated balance, end of year	...	...	-108,000
87.00 Outlays (gross)	...	...	27,000
Adjustments to budget authority and outlays:			
88.30 Deductions for offsetting collections: Trust funds	...	...	-100,000
89.00 Budget authority (net)	...	...	35,000
90.00 Outlays (net)	...	...	-73,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

PROGRAM AND PERFORMANCE

The Administration proposes a comprehensive program to expand high-speed rail service in the United States. Funds will be used to develop fast, cost-effective technologies and to provide financial assistance to high-speed rail projects in major intercity corridors. The programs under this account are grouped under the following broad activities:

TECHNOLOGY DEVELOPMENT - HIGH-SPEED RAIL - To undertake development and demonstration of high-speed rail technologies.

TECHNOLOGY DEVELOPMENT - MAGLEV PROTOTYPE - To undertake phase one of the development program authorized under section 1036(b) of the Intermodal Surface Transportation Efficiency Act of 1991.

CORRIDOR IMPLEMENTATION - To provide financial assistance to the States to facilitate the development of high-speed ground transportation systems serving high-density intercity corridors.

ADMINISTRATIVE EXPENSES - To provide support for administrative costs associated with activities funded under the HSGT Development program.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT - GENERAL FUND

SUMMARY BY ACTIVITY
(Dollars in Thousands)

ACTIVITY	FY 1992 Actual	FY 1993 Enacted	FY 1994 Nondiscre-tionary Chgs	FY 1994 New/Expanded Programs	FY 1994 Request
Technology Development	$ 0	$ 0	$ 0	$ 10,000	$ 10,000
Corridor Implementation	0	0	0	23,120	23,120
Administrative Expenses	0	0	0	1,880	1,880
TOTAL - HSGT-GENERAL FUND	$ 0	$ 0	$ 0	$ 35,000	$ 35,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT - GENERAL FUND

ANALYSIS OF CHANGE TABLE
(Dollars in Thousands)

ITEM	TECHNOLOGY DEVELOPMENT	CORRIDOR IMPLEMENTATION	ADMINISTRATIVE EXPENSES	APPROPRIATION TOTAL
FY 1993 BASE	$0	$0	$0	$0
NONDISCRETIONARY CHANGES:	0	0	0	0
NEW OR EXPANDED PROGRAMS:				
Technology Development	10,000	0	0	10,000
Corridor Implementation	0	23,120	0	23,120
Administrative Expenses	0	0	1,000	1,000
SUBTOTAL - NEW OR EXPANDED PROGRAMS	10,000	23,120	1,000	35,000
TOTAL ADJUSTMENTS to FY 1993 BASE	10,000	23,120	1,000	35,000
TOTAL FY 1994 REQUEST - HSGT - General Fund	$10,000	$23,120	$1,000	$35,000

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

HIGH-SPEED GROUND TRANSPORTATION DEVELOPMENT

OBJECT CLASSIFICATION
(Dollars in Thousands)

Identification Code 69-0722-7-1-401		1992 Actual	1993 Estimate	1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full-time permanent	...	...	964
11.9	Total personnel compensation	...	...	964
12.1	Civilian personnel benefits	...	...	154
21.0	Travel and transportation of persons	...	...	188
22.0	Transportation of things	...	...	1
23.1	Rental payments to GSA	...	...	88
23.3	Communications, utilities, and miscellaneous charges	...	...	8
25.2	Other services	...	...	12,902
26.0	Supplies and materials	...	...	80
31.0	Equipment	...	...	242
41.0	Grants, subsidies, and contributions	...	...	20,373
99.0	**Subtotal, direct obligations**	...	...	**35,000**
99.0	**Reimbursable obligations**	...	...	**100,000**
99.9	**Total obligations**	...	...	**135,000**

HIGH-SPEED GROUND TRANSPORTATION (HSGT) DEVELOPMENT

FY 1994 REQUEST HIGHLIGHTS

The FY 1994 request level of $140 million for HSGT Development reflects an increase of $135 million over the FY 1993 enacted level and includes funding for 20 positions and 15 FTEs. Funding for this program is presented in three accounts and includes $105 million from the Highway Trust Fund and $35 million from the general fund. The distribution of funds by account, fund category and budget activity is shown in the following tables:

Funding by Account
(Dollars in Thousands)

Base Program	Investment Program		
Trust Fund Share of HSGT Development (69-9973-0-7-401)	Trust Fund Share of HSGT Development (69-9973-7-7-401)	HSGT Development (69-0722-7-1-401)	Total
$5,000	$100,000	$35,000	$140,000

Funding by Fund Category and Budget Activity
(Dollars in Thousands)

Budget Activity	Trust Fund	General Fund	Total
Technology Development	$32,873	$10,000	$42,873
- Maglev Prototype	(27,873)	(0)	(27,873)
- High-Speed Rail	(5,000)	(10,000)	(15,000)
Corridor Implementation	72,127	23,120	95,247
Administrative Expenses	0	1,880	1,880
Total	105,000	35,000	140,000

PROGRAM DESCRIPTION

High-speed rail and maglev, collectively referred to as "High-Speed Ground Transportation" (HSGT), offer the potential for a major restructuring of how passengers move in medium range (100-500 mile) intercity corridors. In such corridors, HSGT will be an effective alternative or complement to the currently available, but often congested options of short-haul air or highway travel.

When fully integrated into an intermodal transportation system, HSGT will provide a cost-effective alternative for improving mobility and substantial public benefits, such as an improved environment and a reduced dependence on imported petroleum. There are also substantial opportunities for U.S. industry to participate in the design, development, manufacture and deployment of HSGT.

Two different approaches can be used to develop HSGT service. The first is incremental improvements to existing railroad infrastructure to permit progressively higher speeds with the goal of peak speeds of 150 mph. This is the approach that has been used on the Northeast Corridor. The second approach is the development of HSGT on entirely new and dedicated infrastructure. Such an approach is required for every high-speed service with peak speeds in excess of 150 mph, such as the French-designed TGV system. Generally, this approach requires substantially greater investment before there is any transportation benefit and higher levels of ridership to justify that investment. Different intercity corridors lend themselves to one or the other of these approaches.

In the short term, the program will support ongoing efforts by the States, localities, and private interests to achieve high-speed service through incremental improvements to existing infrastructure.

The initiative may also lay the groundwork for implementation of very high-speed service on new infrastructure later this decade. The program will provide key preconstruction support for developing very high-speed systems and form the basis for developing the public-private partnerships necessary to develop and finance such systems.

A second element to the initiative is the development of new HSGT technologies to provide increased options for transportation decision makers, to improve the economics of HSGT, and to enhance the competitiveness of U.S. industry in the transportation marketplace. This element includes work on phase one of the development of an advanced maglev prototype. The maglev development strategy is cautious and will minimize risk. Specifically, it contains checkpoints at which the program can be terminated if the maglev's technological or economic promise fails to withstand rigorous examination.

The proposed initiative offers many opportunities to assist the development and implementation of HSGT in the U.S. The budget proposes $1.3 billion over the FY 1994-1998 period. A detailed justification of the total FY 1994 request follows by activity.

BUDGET ACTIVITY - TECHNOLOGY DEVELOPMENT **$42,873,000**

The purpose of the technology development program is to enhance the feasibility of HSGT in the U.S., through the development of new HSGT technologies. These systems are designed to offer improved options for transportation decision makers and improve the overall technological competitiveness of the U.S. industry.

Maglev Prototype ($27,873,000)

The first effort involves phase one to develop an advanced maglev prototype. The prototype development program will use a "design competition" approach in this program. In phase one, up to three different teams will develop conceptual designs and these teams will be required to provide at least 10 percent of the cost from non-Federal sources.

The end of phase one will represent a key decision point in the maglev program. In determining whether to proceed with the phase two contracts, the Department will be able to consider the results of a commercial feasibility study, additional research on the public benefits and costs associated with maglev and its competing forms of transportation, and the costs and economics of the specific designs developed under phase one.

The prototype program could be terminated at that point if certain technological or cost goals are not met by the designs or if the results of the commercial feasibility study do not support continued development of the prototype. In such an eventuality, funds reserved for the prototype program would be refocused on the rail technology development and system implementation portions of the initiative.

Designs involving improvements of the systems under development in Germany and Japan, including participation by the firms or agencies developing these systems, will be eligible to participate in this program. However, the lead firm of each consortium must be a U.S. company and the work funded under this effort, including research, development, design and testing, will have to be performed substantially in the U.S.

The proposed program will be managed by FRA. The Department will also contract with the National Academy of Sciences to develop a panel of experts in technology and economics to review the program's progress, evaluate the results, and periodically make independent recommendations to the Department on this program's technical and economic issues, including the system's overall feasibility.

High-Speed Rail   ($15,000,000)

The high-speed rail part of the technology development program will use grants and contracts to address the development and demonstration of certain discrete technologies needed for the introduction of high-speed rail passenger service on existing transportation infrastructure. This program will address such needed technologies as a non-electric high-speed locomotive and train set, highway grade crossing protection suitable for high-speed service, and low-cost, effective signal and communications systems.

BUDGET ACTIVITY - CORRIDOR IMPLEMENTATION $95,247,000

The corridor implementation element provides an assistance program to supplement State, local and private funds to undertake the infrastructure investments required for meritorious HSGT projects. Improvements to the Northeast Corridor will continue to be funded under a separate program and will not be eligible.

A State and local government match of the new HSGT Federal funding is required, even when there is private financing, to ensure that there is strong local commitment to the proposed HSGT project. In addition, improvements presently eligible under existing federal transportation programs will not be eligible under this program and will be funded by others.

Initial funding decisions will emphasize projects to improve service on selected existing rail lines through major upgrades to the existing infrastructure. The program is designed to be flexible, with the Department retaining the discretion to fund those projects that the Department finds are most meritorious according to criteria to be established. As an example, the Department could choose to upgrade eligible corridors to increase nominal speeds to 90 mph+ or could focus its efforts on a few areas to achieve more dramatic improvements.

The program could also fund some of the preconstruction activities where HSGT systems are planned on entirely new, dedicated infrastructure. During the five-year period covered by the budget estimates, however, it is unlikely that there will be many opportunities to fund construction of these systems. Significant amounts of lead time are required prior to the start of construction for franchise award, planning, preliminary design, environmental review and final design.

BUDGET ACTIVITY - ADMINISTRATIVE EXPENSES **$1,880,000**
15 FTEs

STAFFING **($1,880,000) (15 FTEs)**

In FY 1994, FRA is requesting staffing of twenty positions and fifteen FTEs in support of the HSGT program. This is a major new program which FRA cannot support within current staffing. A comparison with similar undertakings demonstrates that this staffing level is both moderate and needed to ensure proper management.

Funding will support salaries and related expenses, such as rent, travel, supplies, equipment, printing and other related common services. The following positions are required in FY 1994:

Program Director	1
Division Chiefs	2
Planning and Control Specialist	1
Systems Engineer	1
General Engineer	2
Planning Engineer	1
Civil Engineer	1
Electrical Engineer	1
Environmental Specialist	1
Financial Analyst	1
Field High-Speed Rail Coordinator	1
Procurement Officer	1
Procurement Specialists	2
Secretaries	2
Branch Chiefs	2
Total	20

The staffing is required to prepare program plans, budget documentation, procurement plans, requests for proposals, statements of work, evaluate proposals, negotiate contracts, award contracts, provide oversight of multiple design contractors and technical and administrative support contractors, and prepare various reports and technical documentation.

In addition, the staff will be engaged in the detailed review and evaluation of corridor master plans for the various high-speed corridors, conducting environmental assessments required by the National Environmental Policy Act on these corridors, and funding a limited number of corridor feasibility studies.

Further, staff will support FRA's safety responsibility for high-speed rail passenger systems designated under the HSGT program. FRA has the responsibility for assuring the safety of these new systems as they are developed and will retain this responsibility as they come into operation.

Many of these positions must be filled early in the fiscal year to ensure award of major contracts. All positions are critical for effective management of this large and complex program.

NATIONAL RAILROAD PASSENGER CORPORATION FISCAL YEAR 1993 SUPPLEMENTAL AND FISCAL YEAR 1994 GRANT REQUEST

Amtrak requests $641 million of Federal funding in FY94 in order to continue operation of its existing national system, provide funding for new state supported service as authorized under PL 102-388, and provide capital funding for both current critical capital needs and for continuing the equipment acquisition programs initiated in FY91. In addition, Amtrak requests that Congress provide an urgently needed supplemental appropriation of $58 million, of which $30 million is for restoration of critically needed working capital seriously depleted as a result of FY92 economic conditions and $28 million to prevent serious service deterioration in the second half of the fiscal year. Amtrak also requests that Congress appropriate to the FRA $137 million to continue the Federally mandated FRA pass through program for non-Amtrak Railroad Retirement and Railroad Unemployment taxes.

Grant Required for Amtrak Operations and Labor Protection - $391 million

Operation of the national system in FY94 will require $391 million to supplement an estimated $1,560 million of revenues available for intercity passenger operations.

Grant Required to Support Intercity Passenger Service - $381 million

Amtrak will require $381 million to support intercity passenger operations. Additionally, Amtrak provides commuter service under contract with commuter authorities in Massachusetts, Connecticut, Maryland, Virginia and California, and anticipates operating new service in Florida in FY94. This request reflects over $18 million in reduced federal support resulting from Amtrak's operation of commuter service.

Grant required for New State Supported Services - $10 million

Funding of $10 million as authorized under PL 102-388 to support new 403(b) state supported services started subsequent to October 1, 1992.

Capital - $250 million

Amtrak's minimum FY94 capital requirement of $308 million will require federal capital support of $250 million with the remaining $58 million being contingent upon our ability to secure private financing. Of the required $308 million, $128 million is for acquisition of new rolling stock and locomotive power.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1993 SUPPLEMENTAL AND
FISCAL YEAR 1994 GRANT REQUEST

Grant Required for Non-Amtrak FRA Pass-Through Program - $137 million

Funding of $137 million is required in FY94 to support federally mandated Amtrak payments that do not contribute to Amtrak's mission of providing intercity rail passenger service. Prior to FY91 Amtrak merely returned these funds to the Federal government in the form of excess Railroad Retirement and Railroad Unemployment Insurance Payments. Beginning in FY91 the funds have been legislated to be paid by the FRA on Amtrak's behalf.

	(Millions)
FY94 Excess Railroad Retirement Taxes	$ 141
FY94 Excess Railroad Unemployment Insurance	10
Total FY94 Requirement	151
Less FY91 Reconciling Adjustment	(14)
FY94 FRA Pass-Through Program Requirement	$ 137

Budget Uncertainties

- Although the economy appears to be on the upswing, the strength of the recovery and its impact on discretionary personal and business travel is still unknown.

- Although Amtrak has settled with all crafts but the Police, the interpretation of the United Transportation Union's comparability clause with the Brotherhood of Locomotive Engineers is under dispute and could cost Amtrak an estimated $15 million in FY93 and FY94.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1993 SUPPLEMENTAL AND
FISCAL YEAR 1994 GRANT REQUEST

FY93 Supplemental Operating Grant Requirement and Working Capital Restoration - $58 million

Continued operation of the national system in FY93 will require an additional $28 million in operating funds to supplement the $331 million provided under PL 102-533. Additionally, $30 million is urgently required to restore working capital seriously depleted as a result of FY92 economic conditions. The elements of this requirement are:

	(Millions)
Working Capital Restoration	$ 30
Revenue shortfall from original estimate	$ 66
Heavy Overhaul Increase	15
On-Board and Station Staffing Restoration	6
Advertising and Sales Support Restoration	7
	94
Less Amtrak Management Actions	(66)
Operating Supplemental	$ 28
FY93 Supplemental Requirement	$ 58

NECIP/NHRIP - $250 million

Amtrak requests a FY94 NECIP/NHRIP grant of $250 million. This includes $185 million for NHRIP (New York to Boston) of which $111 million is additional funding for electrification and $69 million for new train sets. The remaining $65 million is for NECIP (New York to Washington) primarily for electric traction system upgrades, bridge, track, terminal and Communication and Signal upgrades.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1993 SUPPLEMENTAL JUSTIFICATION

($ Millions)

FY93 Grant	Revised FY93	Supplemental Request
$ 331.0	$ 388.5	$ 57.5

Continued operation of the national system in FY93 will require an additional $28 million in operating funds to supplement the $331 million provided under PL 102-533. An additional $30 million is urgently needed to restore working capital seriously depleted as a result of FY92 economic conditions and funds consumed for operations over the last three years.

Working Capital Restoration $30.0 million

One critical repercussion of the recession has been the depletion of corporate cash. Amtrak ended FY92 with a mere $15 million of cash which was supplemented by a $20 million temporary bank loan at the end of the year. With cash reserves essentially depleted there is simply no way that Amtrak can successfully face another year-end without a cash infusion to replace what has been spent on operations in the past 3 years. Based on our current snapshot of the national economy and the FY93 revenue stream, Amtrak expects to face a severe cash shortage during the fourth quarter of FY93.

Increased Overhauls $15.0 million

There also has been a serious reduction in our car and locomotive overhaul programs. A failure to restore these programs to the annual recommended equipment overhaul level will affect future service levels and quality to Amtrak's customers. If this program is not restored, the deteriorated condition of our equipment will be counter-productive to our planned advertising and sales promotion efforts and both short and long term revenues will be negatively impacted. Restoring this program would also allow Amtrak to recall personnel recently furloughed at the Beech Grove and Wilmington heavy overhaul facilities.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1993 SUPPLEMENTAL JUSTIFICATION

Restore On-Board & Station Staffing $6.0 million

Due to FY93 funding constraints, Amtrak was required, as a short-term measure, to reduce both on-board and station staffing to the bare minimum. This approach has significantly affected the quality of service our customers pay for and expect. With spring and summer peak seasons rapidly approaching, the situation will only deteriorate as activity increases. The requested funds will allow for the restoration of on-board crews and station support necessary to provide the service levels our passengers deserve.

Restore Advertising And Sales Support $7.0 million

Amtrak's current advertising and sales promotion programs were slashed in FY93 in an effort to offset a projected funding shortfall, virtually eliminating these programs for the last four months of FY93. The additional funding must be provided if Amtrak is to take advantage of an improving economy and projected improvement in the travel industry in the latter part of FY93 and into FY94. Restoration of these programs is necessary to allow Amtrak's message to be seen and heard along with our competition in order to take full advantage of an improving market.

NATIONAL RAILROAD PASSENGER CORPORATION
SUMMARY OF GRANT JUSTIFICATION

($ Millions)

	FY 1993 Grant Estimate	FY 1993 Revised Estimates	FY 1994 Grant Estimate
Revenue Available for Operations	1,530.0	1,463.5	1,559.7
Funded Amtrak Expense	1,861.0	1,822.0	1,950.2
Grant Requirement for Amtrak Operations	331.0	358.5	390.5
Grant Requirement for Working Capital Restoration	----	30.0	----
Total Amtrak Operating Grant	331.0	388.5	390.5
Grant Summary			
Amtrak Operations	331.0	388.5	390.5
Capital Investment	300.0	165.0	250.0
Total Grant to Amtrak	631.0	553.5	640.5
Revenue to Cost Ratio	**0.84**	**0.80**	**0.82**

NATIONAL RAILROAD PASSENGER CORPORATION
OPERATING EXPENSE COMPARISON

($ Millions)

Operating Expenses	FY 1993 Grant Estimate	FY 1993 Revised Estimate	FY 1994 Grant Estimate
Train Operations	503.2	503.2	509.4
Maintenance of Equipment	478.6	442.5	465.5
Maintenance of Way	213.3	208.7	214.2
On-Board Service	184.8	181.3	185.7
Station Services	132.8	144.2	143.1
Marketing & Reservation Services	200.3	196.4	200.9
General Support	156.2	142.1	146.8
Insurance Taxes & Interest	88.9	100.7	113.2
Depreciation	208.0	210.2	215.2
General & Administrative	49.3	49.3	49.3
Total Operating Expenses	**2,215.4**	**2,178.6**	**2,243.3**
Provision for Inflation	0.0	0.0	73.0
Total Expense	2,215.4	2,178.6	2,316.3
Less:			
Non-Amtrak FRA Pass Thru Program	146.4	146.4	150.9
Expenses Not Requiring Appropriations	208.0	210.2	215.2
Funded Amtrak Expense	**1,861.0**	**1,822.0**	**1,950.2**
Total Revenue	**1,550.0**	**1,470.0**	**1,592.5**
Less:			
Restricted Revenue	20.0	6.5	32.8
Revenue Available for Operations	**1,530.0**	**1,463.5**	**1,559.7**
Grant Requirement for Amtrak Operations	331.0	358.5	390.5
Grant Requirement for Working Capital Restoration		30.0	----
Total Amtrak Operating Grant		**388.5**	**390.5**

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

TRAIN OPERATIONS
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 503.2	$ 509.4	$ 6.2

Train Operations includes the engineers and conductors who operate approximately 220 trains nationally over 25,000 route miles, fuel and electricity, joint terminals, and all operational communications and train control costs associated with our system. Approximately 7% covers the contractual costs of the 17 railroads that provide services for the operation of Amtrak trains.

Amtrak will employ approximately 4,400 people to operate a system that provides service to more than 500 towns and cities and commuter services in California, Connecticut, Florida, Massachusetts, Maryland and Virginia. This work force includes roughly 3,300 Trainmen and Enginemen, 470 managerial, supervisory and clerical staff, and over 560 personnel involved in other functions, such as block and tower operations, dispatching and train control.

Amtrak's commitment to provide the highest quality in passenger comfort and reliability is reflected in testing state-of-the-art trains from around the world. We have tested and are currently operating the Swedish X2000 (Tilt Body train) in revenue service and will be evaluating customer reaction to this new technology. Later in FY93 and FY94 we will be testing the German "ICE" (InterCity Express) train. These tests are being conducted to identify which of the various new technologies will best satisfy our customer's needs by providing better on-time performance, improved passenger comfort and renewed confidence in Amtrak.

The forecasted increase of $6.2 million primarily reflects the impact of the expansion of Amtrak's commuter operations that are fully covered by revenues. Amtrak is currently negotiating with Florida to begin commuter service in January of 1994. Also included is the annualization of FY93 new services (extension of Sunset Limited and San Joaquin) and planned service from Portland, Maine to Boston.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

MAINTENANCE OF EQUIPMENT
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 442.5	$ 465.5	$ 23.0

In order to provide a viable, safe and reliable fleet, Amtrak maintains approximately 2,300 cars and locomotives on a regular basis. The equipment maintenance program includes routine maintenance and cleaning at the end of each trip, periodic preventive maintenance programs, overhauls and equipment conversions. Additionally Amtrak maintains equipment for various commuter agencies. Approximately 6,400 people are required to perform these maintenance functions, 89% of which are involved in maintenance of Amtrak equipment and 11% support Amtrak's fully reimbursable operation of commuter services for California, Connecticut, Florida, Massachusetts, Maryland, and Virginia.

Amtrak's ability to provide reliable and comfortable service to the public is predicated on our ability to avoid mechanical failures. Equipment reliability can be greatly enhanced by increasing the heavy overhaul program to assure a higher performance level. Amtrak initiated a tough new program to ensure that all food service cars comply with strict Food & Drug Administration sanitation requirements. As a result, Amtrak has enhanced its employee training, increased inspections and fumigation of trains, and expanded replacement of older refrigeration equipment not overhauled in the past three years. These changes are very costly; nonetheless, they are essential to maintaining the public's confidence in Amtrak.

The $23.0 million forecasted increase primarily reflects the cost of increased heavy overhauls necessary to restore public confidence in Amtrak, increased commuter services in California Virginia and Florida and for new state supported services in North Carolina, Maine and California.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

MAINTENANCE OF WAY
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 208.7	$ 214.2	$ 5.5

The Maintenance of Way program includes the maintenance of tracks, communications and signal systems, electrification systems, buildings, bridges, tunnels, and all other roadway facilities under Amtrak's ownership. Direct employment is expected to be approximately 3,300. This includes both personnel related to Amtrak's operations and the operations under fully reimbursed commuter service agreements. This program also includes payments to operating railroads for similar costs.

The major portion of Maintenance of Way expense is incurred on Amtrak owned properties primarily in the Northeast Corridor. Over 20% of this program is for fully reimbursable maintenance provided under contractual agreements with various state and commuter agencies. An estimated 7% covers payments to freight railroads for use of their track. The remainder covers maintenance of Amtrak's off-corridor track in New York and Michigan and yards in Louisiana, California, Illinois and Florida.

Amtrak is continuing to work on a priority basis to improve and, where feasible, eliminate grade crossings in order to reduce crossing accidents. Programs to improve ride quality, interlockings, and communication and signal systems are continuing. Amtrak is in the fourth year of the Concrete Tie Replacement Program and is continuing to perform track and signal improvements in New York City as part of a joint venture with Long Island Railroad.

The $5.5 million increase primarily reflects the impact of new commuter and state supported services and other miscellaneous improvements throughout the system.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

ON-BOARD SERVICES
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 181.3	$ 185.7	$ 4.4

On-Board Services has approximately 3,000 Coach and Sleeping Car Attendants, Waiters, Chefs, and Stewards who serve our passengers once they board the trains. These employees work on over 347 food service cars, such as diners, dinettes, buffet cars, and snack cars, as well as, coaches and sleepers. This program also includes the operations of 14 commissaries and 12 crew bases required to support these on-board functions.

Labor, including benefits, accounts for 68% of the programs cost with the remainder covering food, beverages, and supplies. Estimated FY94 program costs are as follows:

	Labor	Other	Total
Food and Beverage Service	$75.2	$45.0	$120.2
Coach Service	16.7	4.0	20.7
Sleeping Car Service	15.4	5.1	20.5
Other On-Board Support	19.4	4.9	24.3
TOTAL	$126.7	$59.0	$185.7

The $4.4 million increase is the result of restoration of crew reductions in FY93, expansion of Superliners to additional routes, and the annualized cost of the New Orleans to Miami extension.

To improve service to our customers, coach and dining car attendants will be added back to the trains. The additional coverage will improve the quality of meal service, responsiveness to passenger needs and other on-board support services.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

STATIONS
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 144.2	$ 143.1	$ (1.1)

This program incorporates the operation of stations and includes ticketing, baggage and express handling. All expenses of station operation such as labor, rent, utilities and routine maintenance are also included.

The proposed FY94 route structure assumes operation of approximately 255 manned and 269 unmanned stations. Of these, 74 are owned by Amtrak, and 450 are owned by other railroads, cities or private interests.

Approximately 2,300 employees support our station service functions, 65% of which provide ticket services, 27% mail, baggage and express services with the remaining 8% covering operations, maintenance and managerial support.

Since 1990, Amtrak has opened four First Class lounges that are located in Chicago Union Station, New York Penn Station, Washington Union Station and Philadelphia 30th Street Station. These lounges enhance the level and quality of service to first class passengers by providing such amenities as access to a conference room and various telecommunication equipment. An additional first class lounge is planned for Los Angeles Union Station in late 1994.

Amtrak is continually working to restore and improve its stations and to transform them into modern and efficient facilities similar to Washington Union Station. Amtrak's facility in Chicago has been completed and work is continuing on Los Angeles Union Station and Philadelphia 30th Street Station. Additionally, Amtrak is upgrading its stations to comply with the accessibility requirements of the Americans with Disabilities Act.

The $1.1 million decrease in expenditures reflects the use of part-time employees that will not only reduce costs but will also improve the quality of customer service through increased coverage in the ticketing and baggage areas.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

MARKETING & RESERVATIONS
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 196.4	$ 200.9	$ 4.5

This program includes Amtrak's use of various Marketing and Sales elements to create and enhance our products and services to increase overall consumer awareness and demand. The elements include advertising, sales promotion, product design and packaging, pricing, distribution, reservations, sales and sales development. Approximately 1,800 personnel are employed to perform these functions.

The Advertising and Sales Promotion Programs are important to expand, enhance and strengthen the ever increasing popularity of passenger rail travel. The advertised message presented to the consumer through the various mediums helps Amtrak to maintain its presence in the marketplace and to support the revenue objectives in a very competitive environment. Ongoing advertising and sales promotion efforts allow us to target messages through selected media and to offer special incentives to our customers.

During FY94 Amtrak's Reservation System expects to receive more than 38.5 million calls and plans to restore the number of calls handled from 93% to 95% while at the same time reducing the average response time. Increased training of our reservation sales agents has improved our ability to convert incoming telephone inquiries into sales. Our reservation offices are currently located in Fort Washington, PA, Chicago, IL, and Riverside, CA.

The $4.5 million requested increase reflects the additional reservation agents required to improve our customer service and expanded advertising and sales promotion programs necessary to take advantage of a growing market.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

GENERAL SUPPORT
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 142.1	$ 146.8	$ 4.7

The General Support program include service and supervisory functions that directly support operations.

This program incorporates the procurement and material control function, revenue accounting, police, training and other activities. In addition, this program provides for the operation of the corporate computer system and field personnel offices. Labor and benefits account for roughly 68% of the program with the remainder covering communication costs, travel, rents, and other office related expenses.

The 1,700 people employed in these functions will not only support Amtrak's operations but also provide the support needed to maintain commuter services in California, Northern Virginia, Massachusetts as well as new commuter services in Florida that are funded by the states and do not require Federal assistance.

With the intense competition and rising consumer expectations, Amtrak has committed to increased emphasis on the quality and consistency of service delivered to our customers. To meet this challenge, Amtrak has chosen an approach of Continuous Quality Improvement or CQI. This approach will have customer focus, employee involvement/empowerment and other quality oriented principles. A portion of the increase reflects the training and other support costs required to make this endeavor successful.

The remaining forecasted increase primarily reflects administrative and overhead costs that are fully reimbursable under the current commuter service contracts.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

INSURANCE, TAXES AND INTEREST
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 100.7	$ 113.2	$ 12.5

The program includes expenses for personal liability and property damage insurance, interest expense, FRA User Fees and federally mandated taxes on fuel.

The forecasted $12.5 million increase is directly related to Amtrak's successful efforts to finance certain new equipment purchases. With the delivery of additional equipment in FY93 and FY94, Amtrak's interest expense is expected to increase by more than $10 million to a level of $36 million.

Cost are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

DEPRECIATION
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 210.2	$ 215.2	$ 5.0

Depreciation cost is a direct function of the value and estimated life of depreciable corporate assets. The total expense is a product of asset acquisition cost and depreciation rates that are based on the estimated useful life.

The $5.0 million increase results from the receipt of new equipment during FY93 and FY94.

This program requires no cash outlays and therefore does not impact the operating grant requirement.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

GENERAL AND ADMINISTRATIVE
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 49.3	$ 49.3	--

This program includes the administration and overhead functions of the corporation, most of which are performed at corporate headquarters. This represents approximately 2% of Amtrak's total cost.

The program covers expenses associated with the Board of Directors, President's Office, Internal Affairs, Corporate Planning, Government Affairs, Corporate Communications, Law, Labor Relations, headquarters personnel functions and most corporate financial operations. Of the estimated $49.3 million, $18 million is to provide legal and claims support.

We plan to hold the line on administrative costs and manpower by introducing quality measures which will provide innovative concepts for better utilization of our resources.

Costs are in constant FY93 dollars. The estimated FY94 inflation rate is explained on page 20.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

GENERAL AND ADMINISTRATIVE
Office Of Internal Affairs (IG)
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 4.4	$ 4.4	--

Included under the major program General and Administrative is the Office of Internal Affairs.

This Department has the responsibility of conducting and supervising audits and investigations related to the programs and operations of Amtrak. The department consists of three major areas (Inspector General, Policy Procedure Resource and Audits and Criminal Investigations) with a staff complement of 70.

Labor and benefits account for approximately 95% of the department's budget with the remaining covering travel, professional services, and other related expenses.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

REVENUE

Revised FY93	Estimate FY94	Change
$ 1,470.0	$ 1,592.5	$ 122.5

FY94 revenue is projected to increase $122.5 million (8.3%) over the FY93 level. Most of this increase ($81.5 million or 67%) is in Passenger Related revenue, which is 7.8% greater than FY93. The Passenger Related increase will result from increased passenger volume due to the anticipated economic recovery, additional new equipment and expanded state supported services in Maine, North Carolina and California. Additional revenue increases will be generated by new and expanded commuter services in Florida, California and Virginia. The anticipated revenue growth is a direct result of expanded advertising and sales promotion programs and the renewed corporate emphasis on service quality as the corporation commits itself and its employees to providing a superior transportation system.

	FY 93		FY 94	
	$	% of Total	$	% of Total
Passenger Related	1,042.5	70.9	1,124.0	70.6
Commuter Operations	152.3	10.4	177.0	11.1
Commuter Fees	84.5	5.7	87.8	5.5
State Payments	23.6	1.6	25.5	1.6
Mail Baggage & Express	49.0	3.3	51.9	3.3
Real Estate & Operations	38.5	2.7	36.2	2.3
Freight	17.0	1.2	17.7	1.1
Interest	2.6	0.2	2.8	0.2
Operations & Maint. Svcs.	42.0	2.8	43.6	2.7
Miscellaneous	18.0	1.2	26.0	1.6
TOTAL	1,470.0	100.0	1,592.5	100.0

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

PROVISION FOR INFLATION INCREASE
Operating Expenses

Revised FY93	Estimate FY94	Change
-	$ 73.0	$ 73.0

Amtrak's inflation estimate of 3.9% is based upon labor contract increases, increases in union health insurance premiums and CPI forecast of fuel and other materials. The estimate is higher than the 2.9% assumed in the FY94 President's Budget and greater than the Congressional Budget Office's estimate of 2.7% but is relatively consistent with the Blue Chip consensus of 3.5%.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 BUDGET JUSTIFICATION

($ Millions)

GRANT REQUIRED FOR NON-AMTRAK FRA PASS THROUGH PROGRAMS
Operating Expenses

Revised FY93	Estimate FY94	Change
$ 146.4	$ 150.9	$ 4.5

This funding is required to support Federally mandated passenger railroad payments, which FRA has been directed to pay on Amtrak's behalf since FY91. These payments represent the contributions to the Railroad Retirement trust fund and for the Railroad Unemployment Repayment Tax in excess of Amtrak's liability for benefits to its retirees and other beneficiaries.

- **Railroad Retirement - $141.2 Million**

  Current law requires that Amtrak and its employees pay Tier II and supplemental taxes that will total an estimated $195.9 million for FY94.

  Benefits paid to individuals retired from Amtrak and to their beneficiaries will be approximately $54.7 million, as estimated by the Railroad Retirement Board, leaving an excess payment of $141.2.

- **Railroad Unemployment - $9.7 Million**

  Current law requires Amtrak to annually pay a Railroad Unemployment Repayment tax. The estimate for FY94 is $9.7 million that will be paid by FRA on behalf of Amtrak.

Estimated program funding has been reduced by $13.7 million to reflect the reconciliation of original FY91 estimate to actual contributions.

	$Millions
FY94 Excess Railroad Retirement Taxes	$ 141
FY94 Excess Railroad Unemployment Insurance	10
Total FY94 Requirement	151
Less FY91 Reconciling Adjustment	(14)
FY94 FRA Pass-Through Program Requirement	$ 137

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 CAPITAL BUDGET JUSTIFICATION

Amtrak's FY94 capital requirements total $308 million. Of this amount, it is estimated that $58 million will be provided through outside financing, leaving a federal grant requirement of $250 million. A total of $128.4 million is provided for new rolling stock with $116 million designated for additional new equipment purchases. This includes $58 million in private financing. Amtrak's ability to purchase new equipment is contingent upon our ability to secure outside financing. This ability is also constrained by a significant and increasing number of competing needs. Acquisition of new equipment, of course, contributes to generating out-year incremental revenue, and supports the continued reduction of federal funds required for operations.

The selected projects in the proposed FY94 capital plan represent the highest priority requirements. It was necessary to delay several programs during both FY92 and FY93 due to lack of capital resources. The FY94 capital program provides resources for some of these projects.

The major programs comprising Amtrak's FY94 capital requirements are:

	(Millions)
Rolling Stock (New)	$ 128.4
Rolling Stock Modifications	98.3
Maintenance Facilities	19.1
Right-of-Way	19.1
Information & Communication Systems	7.7
Stations/On-Board Services	25.6
Other Projects	9.8
Total Capital Requirements	308.0
Less: Outside Financing	58.0
FY94 Capital Grant Requirement	**$ 250.0**

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 CAPITAL BUDGET JUSTIFICATION

While total amounts are shown for each major program, details are provided for major items only.

I. Rolling Stock (New) - $128.4 million

Amtrak's plan includes the purchase of one or more of the following equipment programs. Actual FY94 acquisitions will depend on the grant level received and Amtrak's ability to privately finance a portion of the acquisition cost.

- Acquire thirteen electric locomotives to ensure that high-speed service north of New Haven can begin pending the delivery of new high-speed sets. These units will eventually replace the aging E-60 locomotives.
- Acquire fifteen switching locomotives to replace the existing aging locomotives.
- Exercise the option for 50 Viewliner sleepers to replace Heritage equipment operating in long-distance service in the East.
- Purchase 23 Auto Carriers to expand capacity on the Auto Train when it is converted to Superliner equipment.
- Acquire 110 RoadRailers to expand U.S. mail business, if the feasibility tests for operating this equipment in intercity passenger service are successful.

New equipment also includes the principal payments and capitalized costs on past purchases. For FY94, $12.4 million is included for prior acquisitions of locomotives, Superliners, and Viewliners.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 CAPITAL BUDGET JUSTIFICATION

II. Rolling Stock Modifications - $98.3 million

Includes equipment modification and enhancement programs. $20 million is provided for full retention systems and disposal facilities, $70 million for equipment overhauls, and $7 million for equipment modification & ventilation improvements.

III. Maintenance Facilities - $19.1 million

Continues the modernization of maintenance facilities for efficient operation and preservation of equipment. Approximately $19 million is allocated for these programs at several of Amtrak's maintenance facilities, including $10 million for facility improvements, $5 million for safety and environmental projects, and $2 million for equipment washer repairs at various locations.

IV. Right-of-Way - $19.1 million

Includes programs needed to ensure the safe operation of trains. $6.8 million of these funds will replace ties and surface track at various locations where aging and deterioration is evident. $4.0 million is included for replacing maintenance of way equipment, $3.0 million is provided for the bridge improvement program, and $3.5 million for other system improvements.

V. Information and Communications Systems - $7.7 million

Provides $4.2 million for principal payments on two previously approved projects to upgrade equipment. These projects were implemented to upgrade IBM mainframe computer and peripheral capacity and improve the reliability, availability, and performance of our business and reservations systems. Also, provides $3.5 million for ongoing and new system improvements such as the development of the Labor Management System and the acquisition of disk storage devices.

NATIONAL RAILROAD PASSENGER CORPORATION
FISCAL YEAR 1994 CAPITAL BUDGET JUSTIFICATION

VI. Station Improvements - $25.6 million

Includes funding required for several projects delayed from the FY92 capital program as well as various new efforts. Major projects include: a principal payment of $5.3 million for the 30th Street Station project and $2.1 million for the Western RSO, $7.7 million for required improvements to be made as a result of the Americans with Disabilities Act, $4.5 million for Auto Train Station expansion, $2.0 million for station improvement projects, and $1.7 million for passenger service improvements.

VII. Other - $9.8 million

Provides $5.0 million in funding for the annual vehicle replacement program, and $1.0 million for discretionary projects under $100,000. Also provides $1.0 million for 403(b) funds that would be used when states contribute funding for a project beneficial to both parties.

NATIONAL RAILROAD PASSENGER CORPORATION
NORTHEAST HIGH SPEED RAIL IMPROVEMENT PROJECT (NHRIP)
NORTHEAST CORRIDOR IMPROVEMENT PROJECT (NECIP)
FISCAL YEAR 1994 JUSTIFICATION

Amtrak requests a FY94 NHRIP/NECIP grant of $250 million. This includes $184.7 million for NHRIP (New York to Boston), of which $110.9 million is additional funding for electrification, $68.5 million for new trainsets and trainset testing, and $5.3 million for project management. The remaining $65.3 million is for NECIP (Washington to New York), and includes $3.5 million for major bridge improvements, $8.5 million for track improvements, $9.0 million for communication & signal system upgrades, $13.5 million for electric traction system upgrades, $2.0 million for Sunnyside Yard body tracks, $24.8 million for New York tunnels and Penn Station, and $4.0 million for maintenance of way bases.

The major program totals are listed below:

New York to Boston	(Millions)
Electrification	$ 110.9
High-Speed Trainsets & Testing	68.5
Project Management	5.3
Total	184.7
Washington to New York	
Major Bridge Replacements	$ 3.5
Track Improvements	8.5
C&S System Upgrades	9.0
ET System Upgrades	13.5
Sunnyside Yard Body Tracks	2.0
New York Tunnels & Penn Station	24.8
Maintenance of Way Bases	4.0
Total	65.3
Total FY94 NHRIP/NECIP Request	**$ 250.0**

NATIONAL RAILROAD PASSENGER CORPORATION
NORTHEAST HIGH SPEED RAIL IMPROVEMENT PROJECT (NHRIP)
NORTHEAST CORRIDOR IMPROVEMENT PROJECT (NECIP)
FISCAL YEAR 1994 JUSTIFICATION

New York to Boston - $184.7 million

Electrification - $110.9 million

Completes the funding required for the design and build contract to extend electrification from New Haven to Boston. Includes continued funding for turnkey contract for construction of the electric catenary system between New Haven and Boston, including the acquisition of any necessary real estate.

High-Speed Trainsets & Testing - $68.5 million

Provides funding for purchase of the first group of high-speed trainsets for use in Boston to Washington services, and associated testing.

Project Management - $5.3 million

Provides funds for planning, scheduling and overall project management of Northeast High Speed Rail Improvements.

NATIONAL RAILROAD PASSENGER CORPORATION
NORTHEAST HIGH SPEED RAIL IMPROVEMENT PROJECT (NHRIP)
NORTHEAST CORRIDOR IMPROVEMENT PROJECT (NECIP)
FISCAL YEAR 1994 JUSTIFICATION

Washington to New York - $65.3 million

Major Bridge Replacements - $3.5 million

Provides for the conversion of open deck bridges on the Northeast Corridor between Washington and New York to ballasted decks. There are 14 bridges currently identified for this project. It also includes a feasibility study of a program to convert the 33 spans in the Chester area to ballasted decks.

Track Improvements - $8.5 million

Continues track improvements south of New York. Includes concrete ties, rail, undercutting, interlocking reconfiguration, turnout rehabilitation, crossovers, and intermediate track between interlockings. It also includes beginning development of a maintenance and planning database to facilitate projections of future maintenance requirements.

C&S System Upgrades - $9.0 million

Includes replacement of defective cable and replacement of centrifugal relays with modern phase selective track circuits to enhance safety and operation of the Philadelphia and New York Divisions. Also includes the upgrade of position light signals to color position lights for safety enhancements, the upgrade of outdated CETC projectors and graphics generators in Philadelphia, and the upgrade of the communications and signal/electric traction Computer Aided Design & Drafting (CADD) systems.

NATIONAL RAILROAD PASSENGER CORPORATION
NORTHEAST HIGH SPEED RAIL IMPROVEMENT PROJECT (NHRIP)
NORTHEAST CORRIDOR IMPROVEMENT PROJECT (NECIP)
FISCAL YEAR 1994 JUSTIFICATION

ET System Upgrades - $13.5 million

Continues incremental upgrades required to rehabilitate the entire sixty-year old electric traction power system south of New York. The scope of work, as detailed in the Master Plan, includes rehabilitation of the 138KV transmission network, frequency converter replacement, catenary rehabilitation, traction power transformer replacement, 12KV trolley circuit breaker replacement, control cable renewal, and repairs to the catenary poles and foundations. Total project costs are estimated at more than $400 million.

Sunnyside Yard Body Tracks - $2.0 million

Provides for the renewal of ten body tracks in Sunnyside, New York. The body tracks are used for storage and servicing of all trains originating in New York. The improvements are required for safe and reliable train operations. Of the 36 tracks, 26 have been renewed. This funding will complete the renewal of the Sunnyside Yard body tracks.

New York Tunnels & Penn Station - $24.8 million

Continues the modernization of the New York tunnels and Penn Station with emphasis on the mechanical and electrical service and the communications and control systems. This work will be performed jointly with the Long Island Railroad (LIRR), whose estimated contribution is $20.5 million.

Maintenance of Way Bases - $4.0 million

Begins a program to design and construct maintenance of way bases in Philadelphia, PA (FY94), Boston, MA (FY95), and Hunter, NJ (FY96).

U.S. Department of
Transportation

BUDGET ESTIMATES

FISCAL YEAR 1994

FEDERAL TRANSIT ADMINISTRATION

SUBMITTED FOR USE OF
THE COMMITTEES ON APPROPRIATIONS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

FISCAL YEAR 1994
BUDGET ESTIMATES

SUBMISSION TO CONGRESS

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

FY 1994 BUDGET SUBMISSION TO CONGRESS

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INTRODUCTION

The budget request of the Federal Transit Administration (FTA) for FY 1994 emphasizes increased capital funding which is consistent with the Administration's goals for long-term investment in mass transit infrastructure. It totals $4.60 billion in budgetary resources, of which $1.64 billion will be funded from general fund appropriations and the balance of $2.96 billion will be funded from the Mass Transit Account of the Highway Trust Fund. This is an $802 million increase over the FY 1993 enacted level of $3.80 billion.

PROGRAM GOALS

This budget request has been developed to meet several important goals: 1) support the Administration's goals to increase infrastructure investment, providing safer, faster and easier transportation for all Americans; 2) address the need for transit investment identified in the 1992 Section 308 Report of transit needs; 3) maximize the use of trust funds versus general revenues; 4) maximize the amount of funding delivered by formula, rather than on a discretionary basis; 5) support metropolitan planning requirements in the ISTEA; and 6) encourage the use of flexibility provided by the ISTEA.

1. Increase Infrastructure Investment

The Federal Transit Administration (FTA) FY 1994 Budget at $4.6 billion is a significant increase over mass transportation budgets submitted to Congress over the last twelve years. This reflects the Administration's goals to increase investment in the Nation's infrastructure.

To enable mass transit to meet this goal, in FY 1994, $2.5 billion for Formula Grants is requested including an amount of $699 million for the Formula Investment Program, specifically dedicated to capital section 9, section 18, and section 16 projects. These funds may be used for a wide variety of mass transit projects, which provide for routine capital replacement and are the backbone for transit operations. Funds will be used to upgrade rail facilities and equipment, and replace rail rolling stock, thus beginning to eliminate the rail investment backlog. These funds will also fund bus and van replacement and bus facility rehabilitation. The newer vehicles, to replace the aging U.S. transit fleet, will be safer and more reliable, and contribute to improved air quality. In addition, these vehicles will also be more accessible to disabled persons.

2. Address Transit Needs

At the request level, the FTA programs, together with State and local match, will go a long way to help meet the goals defined in FTA's 1992 Section 308 Report to Congress entitled, "Public Transportation in the United States: Performance and Condition." The Section 308 Report defines two levels of needed capital investment. The first is to **Maintain Current Conditions and Performance** estimated at $3.9 billion annually; the second is to **Improve Conditions and Performance** with an annual cost of $3.6 billion. The total cost estimated to meet both levels is $7.5 billion annually.

Exhibit 1 shows a history of the level of Federal capital funding for FY 1992 and FY 1993, and the amount that would be available in this budget request to address these needs. The amount available for capital funding will increase from $2.8 billion in fiscal years 1992 and 1993 to $3.6 billion in FTA's proposed FY 1994 budget. The Federal funding level of capital funding proposed will therefore increase to almost half of the $7.5 billion annual needs. Additional State and local matching funds and the use of ISTEA flexible funds offer potential sources of funds to help meet a larger portion of the needs.

This capital funding, together with State and local funds, will be used to upgrade rail facilities and equipment and replace rail rolling stock, thus beginning to eliminate the backlog of unmet rail investment needs; to replace buses and vans, and rehabilitate bus facilities; and to finance new systems.

3. Maximize Use of Trust Fund Revenue

This budget request was developed to make maximum use of trust fund resources. Of the $4.6 billion requested, $2.96 billion is to come from the Mass Transit Account of the Highway Trust Fund. At this level, 64 percent of the overall program will be financed by user fees. This level makes full use of the ISTEA authorization for Mass Transit Account funds for the Formula Grants program and uses 99 percent of the ISTEA Trust Funded authorization for the Discretionary Grants program.

This use of almost the entire authorized Mass Transit Account supports the Department's goal to increase reliance on the proceeds of user fees to support Federal transportation programs. Increased support of the formula program from the Trust Fund will also provide a more equitable distribution of gas tax revenues by allocating these resources by formula to all grantees nationwide.

4. Maximize Use of Formula Rather Than Discretionary Programs

This budget request calls for an increase in the formula programs from $1.7 billion enacted in FY 1993 to $2.4 billion requested for FY 1994, for sections 9, 18, and 16(b)(2). This provides a $734 million, or 43 percent, increase for formula grants for these programs over the FY 1993 enacted level. The discretionary programs would increase only about 3 percent over FY 1993 enacted levels. With this budget request, much more of the overall program would be allocated to formula programs, more closely approximating the allocation between formula and discretionary levels intended in the authorizing legislation. The attached chart, Exhibit 2, shows that in fiscal years' 1990-1992, and in ISTEA the percent of funds available for the Formula Grants programs is about 60 percent compared to Discretionary Grants at 40 percent. In FY 1993, the amount available in the formula programs decreased significantly to about 50 percent, and 50 percent for the Discretionary Grants program. The requested FY 1994 budget brings the Formula Grants program funding back closer in line with the ratio of formula to discretionary funds during the early 1990's and the ratio intended in ISTEA.

In addition, the increase in the formula programs brings funding back up to the same levels as were funded in FY 1984 and FY 1985, about $2.4 billion annually, when formula section 9 and section 18 were first authorized. Targeting resources to the formula programs, which are distributed more widely than discretionary resources, will assure that these funds provide a more stable and reliable resource to be used for routine reinvestment in transit infrastructure.

5. Support Metropolitan Planning Requirements of ISTEA

The ISTEA expanded the role and responsibilities of the metropolitan planning organizations (MPO) within the Nation's urban areas. In order to assist in implementing the requirements of the ISTEA, this budget proposes that a portion of funds under the Formula Grants programs be apportioned to the States by statutory formula for the purposes of metropolitan planning activities allowed under section 8(n) of the Federal Transit Act, as amended. These additional funds under the Formula Grants programs together with funds set-aside under the Transit Planning and Research Program will bring the amounts made available to the MPO's for planning activities to the statutory 45 percent of 3 percent of the total program, minus WMATA, called for in the ISTEA.

6. Encourage the Use of ISTEA Flexibility

The ISTEA provides State and local governments enhanced flexibility, which will permit grantees to target funds at the best transportation investment regardless of the source of funding at the Federal level.

The ISTEA permits significant amounts of funds authorized by Title 23, United States Code, to be used for both highway and transit purposes. Up to $13 billion of funds requested for FHWA programs in FY 1994 may be made available, at State and local discretion, for transit projects. This includes the multi-modal Surface Transportation and Congestion Mitigation and Air Quality Programs as well as the funds for the National Highway System and other highway programs. FTA intends to continue efforts to encourage State and local governments to consider these funds as multi-modal resources. Increased transit funding from these resources will help in maintaining existing transit performance and improving the conditions of transit capital equipment and facilities.

HIGHLIGHTS

Highlights of FTA's FY 1994 budget request are as follows:

- Administrative Expenses. A program level of $39.5 million is requested for administrative expenses, up from $38.6 million in FY 1993. This funding is a slight increase over the FY 1993 enacted level but includes staffing and administrative expenses cuts initiated by the Administration to control the deficit and increase productivity in the Federal Government. Administrative expenses have been cut 3 percent and staffing has decreased a total of 12 FTE, 5 FTE during FY 1993 and an additional 7 FTE in FY 1994.

- Interstate Transfer Grants - Transit. An appropriation of $45.0 million is requested from general funds to fund transit projects substituted for withdrawn Interstate Highway segments. An additional $38.0 million in FY 1995 will be needed to complete the transit projects.

- Washington Metro. The request for $200 million in general fund appropriations will permit the Washington Metropolitan Area Transit Authority to continue on its "fast track" program for completion of the remaining 13.5 miles of the 103-mile authorized system.

- Formula Grants. A total of $2.45 billion is requested for formula grants, including the transit investment program funds. Of this amount $1.32 billion will be derived from general fund appropriations and $1.13 billion from trust funds. From these funds, $2.24 billion would be used for section 9 Urban Formula Grants, $130.6 million for Nonurban Formula Grants and $59.0 million for transportation for Elderly and Disabled Persons, and $21.2 million for MPO planning activities. Section 9 Operating Assistance would be maintained at $802 million, nearly the same level enacted for the last 7 years.

- University Transportation Centers. An appropriation of $6 million is requested for the section 11(b) University Transportation Centers program.

- Transit Planning and Research. A program level of $85.0 million is requested in budget authority for the Transit Planning and Research programs. In accordance with the formula for allocating these funds included in ISTEA, $38.25 million would be made available for section 8 grants to the States for use by Metropolitan Planning Organizations (This will be combined with $21.2 million to be made available under the Formula Grants Program for a total of $59.4 million.), $4.25 million for the section 18(h) Rural Transit Assistance Program, $7.75 million for the section 26(a) State Planning and Research Program, $7.75 million for the Transit Cooperative Research Program, $24.0 million for the National Planning and Research Program, and $3 million for the National Transit Institute.

The $24 million requested for the National component of the TPR program is the same as the FY 1993 enacted level. This continuing level of funding for research programs helps support the implementation of the Americans with Disabilities Act and the Clean Air Act requirements. In addition, FTA continues to identify the use of new technology to improve the efficiency of public transit. A substantial opportunity exists for the transit industry to adopt existing military technology that can solve transit problems and lower its capital costs.

o Discretionary Grants. A total of $1.772 billion is requested in trust fund obligation limitations for the section 3 Discretionary Grants program. Of this amount $760.1 million (42.9 percent) would be available for Fixed Guideway Modernization, $657.2 million (37.1 percent) for New Fixed Guideways, and $354.3 million (20 percent) for Bus and Bus-Related projects. This slight deviation from the statutory percentages of 40-40-20 for these categories is necessary to set New Start funding at a level that provides projects under existing Full Funding Grant Agreements (FFGA) and other meritorious projects with the amount of funds they likely can use in FY 1994. This proposed allocation of the section 3 program will also increase funding to address the significant backlog of deferred investment in the Nation's older rail systems.

Exhibit 1

Federal Capital Funding Available Versus Other Funding
(in millions of dollars)

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Total FTA Budget	$3,772	$3,800	$4,602
Less:			
Administrative Expenses	37	39	39
Transit Planning and Research	104	85	85
University Centers	7	6	6
Section 9 Operating Assistance	802	802	802
Section 18 Operating Assistance	50	50	50
Remainder Available for Capital	$2,772	$2,818	$3,620

Exhibit 2

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

DISCRETIONARY AND FORMULA PROGRAMS
(dollars in thousands)

	FY 1990 ENACTED		FY 1991 ENACTED		FY 1992 ENACTED		FY 1993 ENACTED		FY 1994 BUDGET REQUEST		FY 1994 ISTEA LEVEL	
	AMOUNT	%	AMOUNT	%	AMOUNT	%	AMOUNT	%	AMOUNT	%	AMOUNT	%
Discretionary (Section 3 Only)	$982,045	36.29%	$1,114,982	37.80%	$1,342,174	40.36%	$1,725,000	50.36%	$1,771,575	42.13%	$2,050,000	41.71%
Formula Grants (Sections 9, 16, and 18 Only)	1,724,425	63.71%	1,834,979	62.20%	1,983,733	59.64%	1,700,000	49.64%	2,433,691	57.87%	2,866,050	58.29%
TOTAL	$2,706,470	100.00%	$2,949,961	100.00%	$3,325,907	100.00%	$3,425,000	100.00%	$4,205,266	100.00%	$4,916,050	100.00%

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESOURCE SUMMARY – FINANCING
($ In Thousands)

EXHIBIT IA

APPROPRIATION TITLE	BUDGET AUTHORITY FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
General Funds (GF):			
Administrative Expenses	37,000	13,400	21,295
Research, Training and Human Resources	21,000	...	...
Transit Planning and Research	...	29,000	45,875
Interstate Transfer Grants—Transit	160,000	75,000	45,000
Washington Metro	124,000	170,000	200,000
Formula Grants	1,520,000	1,117,465	1,324,916
University Transportation Centers	...	2,025	3,238
Miscellaneous Expired Accounts	3,439	...	...
Discretionary Grants	...	270,000	...
Total, General Funds	1,865,439	1,676,890	1,640,324
(Stimulus Supplemental)	...	(736,490)	...
Trust Funds (TF):			
Trust Fund Share Account	...	1,150,000	1,190,000
Administrative Expenses	...	25,150	18,162
Transit Planning and Research	...	56,000	39,125
Formula Grants	...	1,064,875	1,129,951
University Transportation Centers	...	3,975	2,762
Discretionary Grants (CA)	1,910,000	1,725,000	1,785,000
Total, Trust Funds	1,910,000	2,875,000	2,975,000
(Stimulus Supplemental)	...	(15,850)	...
Total, Budget Authority:			
Administrative Expenses	37,000	38,550	39,457
Research, Training and Human Resources	21,000	...	...
Transit Planning and Research	...	85,000	85,000
Interstate Transfer Grants—Transit	160,000	75,000	45,000
Washington Metro	124,000	170,000	200,000
Formula Grants	1,520,000	2,182,340	2,454,867
University Transportation Centers	...	6,000	6,000
Miscellaneous Expired Accounts	3,439	...	...
Discretionary Grants	1,910,000	1,995,000	1,785,000
Total, Budget Authority	3,775,439	4,551,890	4,615,324
(Stimulus Supplemental)	...	(752,340)	...
LIQUIDATING CASH APPROPRIATIONS:			
Discretionary Grants	1,500,000	1,500,000	1,000,000
Trust Fund Share	...	1,150,000	1,150,000
Total	1,500,000	2,650,000	2,150,000
(Stimulus Supplemental)	...	(15,850)	...

EXHIBIT IB

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESOURCE SUMMARY - FINANCING
($ In Thousands)

APPROPRIATION TITLE	PROGRAM LEVEL FY 1992 Actual	FY 1993 Estimate	FY 1994 Request
General Funds (GF):			
Administrative Expenses	36,964	13,400	21,295
Research, Training and Human Resources	12,698	9,284	...
Transit Planning and Research	...	29,000	45,875
Interstate Transfer Grants--Transit	154,832	111,291	45,000
Washington Metro	123,380	171,407	200,000
Formula Grants	1,562,048	1,133,612	1,424,916
University Transportation Centers	...	2,025	3,238
Miscellaneous Expired Accounts	999	22	...
Discretionary Grants	...	270,000	...
Total, General Funds	1,890,921	1,740,041	1,740,324
(Stimulus Supplemental)	...	(736,490)	...
Trust Funds (TF):			
Trust Fund Share Account	...	1,150,000	1,190,000
Administrative Expenses	...	25,150	18,162
Transit Planning and Research	...	56,000	39,125
Formula Grants	...	1,064,875	1,129,951
University Transportation Centers	...	3,975	2,762
Discretionary Grants (CA)	1,492,822	1,750,500	1,850,000
Total, Trust Funds	1,492,822	2,900,500	3,040,000
(Stimulus Supplemental)	...	(15,850)	...
Total, Program Level:			
Administrative Expenses	36,964	38,550	39,457
Research, Training and Human Resources	12,698	9,284	...
Transit Planning and Research	...	85,000	85,000
Interstate Transfer Grants--Transit	154,832	111,291	45,000
Washington Metro	123,380	171,407	200,000
Formula Grants	1,562,048	2,198,487	2,554,867
University Transportation Centers	...	6,000	6,000
Miscellaneous Expired Accounts	999	22	...
Discretionary Grants	1,492,822	2,020,500	1,850,000
Total, Program Level	3,383,743	4,640,541	4,780,324
(Stimulus Supplemental)	...	(752,340)	...

EXHIBIT IC

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESOURCE SUMMARY – FINANCING
($ in Thousands)

APPROPRIATION TITLE	OUTLAYS FY 1992 ACTUAL	 FY 1993 ESTIMATE	 FY 1994 REQUEST
General Funds (GF):			
Administrative Expenses	37,483	12,768	21,204
Research, Training and Human Resources	11,383	16,623	12,629
Transit Planning and Research	...	(47,925)	6,350
Interstate Transfer Grants—Transit	237,917	153,985	108,040
Washington Metro	163,447	178,908	138,127
Formula Grants	1,868,249	753,491	778,401
University Transportation Centers	...	(2,775)	358
Miscellaneous Expired Accounts	28,104	34,272	24,824
Discretionary Grants	...	122,055	147,945
Total, General Funds	**2,346,583**	**1,221,402**	**1,237,878**
(Stimulus Supplemental)	...	**(130,322)**	**(253,603)**
Trust Funds (TF):			
Trust Fund Share Account	...	1,150,000	1,190,000
Administrative Expenses	...	25,150	18,162
Transit Planning and Research	...	56,000	39,125
Formula Grants	...	1,064,875	1,129,951
University Transportation Centers	...	3,975	2,762
Discretionary Grants (CA)	1,267,845	1,290,539	1,470,363
Total, Trust Funds	**1,267,845**	**2,440,539**	**2,660,363**
(Stimulus Supplemental)	...	**(15,850)**	...
Total, Outlays:			
Administrative Expenses	37,483	37,918	39,366
Research, Training and Human Resources	11,383	16,623	12,629
Transit Planning and Research	...	8,075	45,475
Interstate Transfer Grants—Transit	237,917	153,985	108,040
Washington Metro	163,447	178,908	138,127
Formula Grants	1,868,249	1,818,366	1,908,352
University Transportation Centers	...	1,200	3,120
Miscellaneous Expired Accounts	28,104	34,272	24,824
Discretionary Grants	1,267,845	1,412,594	1,618,308
Total, Outlays	**3,614,428**	**3,661,941**	**3,898,241**
(Stimulus Supplemental)	...	**(146,172)**	**(253,603)**

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESOURCE SUMMARY - FTE

APPROPRIATION TITLE	FTE EMPLOYMENT FY 1992 ACTUAL	 FY 1993 ENACTED	 FY 1993 REVISED	 FY 1994 REQUEST
Full-time equivalent employment subject to ceiling:				
Full-time permanent	441	468	463	456
Other than Full-time permanent	11	10	10	10
Total FTE employment	452	478	473	466
Full-time equivalent employment non-ceiling:				
Other than full-time permanent	18	19	19	18
Total FTE (ceiling and non-ceiling)	470	497	492	484

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESOURCE SUMMARY – FTP POSITIONS

APPROPRIATION TITLE	AUTHORIZED POSITIONS (FULL-TIME PERMANENT) FY 1992 ACTUAL	FY 1993 ENACTED	FY 1993 REVISED	FY 1994 REQUEST
Administrative Expenses	464	492	487	480

APPROPRIATION LANGUAGE

General Provisions

Sec. [313] 311. The limitation on obligations for the programs of the Federal Transit Administration shall not apply to any authority under section 21 of the Federal Transit Act, 5previously made available for obligation, or to any other authority previously made available for obligation under the Discretionary Grants program.

[Sec. 314. Notwithstanding any other provision of law, none of the funds in this Act shall be available for the construction of, or any other costs related to, the Central Automated Transit System (Downtown People Mover) in Detroit, Michigan.]

[Sec. 316. Every 30 days, the Federal Transit Administration shall publish in the Federal Register an announcement of each grant obligated pursuant to sections 3 and 9 of the Federal Transit Act, including the grant number, the grant amount, and the transit property receiving each grant.]

[Sec. 342. None of the funds made available in this Act or in any other Act making funds available to the Federal Transit Administration, shall be used to withhold funds for any section 3 or section 9 operating or capital grants for the city of Phoenix, Arizona based on the inclusion of a "preference in hiring" provision in the employees protective arrangements developed pursuant to 49 U.S.C. 1609(c) and the Federal Transit Administration shall within 30 days of enactment of this provision award any such pending grant application: *Provided*, That the Secretary of Labor has certified that fair and equitable arrangements have been adopted for the protection of employees.]

[Sec. 343. For fiscal years 1992 and 1993, funds provided under section 18 of the Federal Transit Act shall be exempt from requirements for any non-Federal share, in the same manner as specified in section 1054 of Public Law 102-240.]

[Sec. 344. Notwithstanding any other provision of law or other requirement, the city of Indianapolis, Indiana is authorized to retain any funds not used under the authority of Facility Grant IN-03-0057 and IN-23-9001 and to use such funds in accordance with the requirements of section 9 of the Federal Transit Act of 1964 as amended.]

[Sec. 345. Notwithstanding any other provision of law limiting appropriations for the Westside Light Rail Project in Portland, Oregon, funds provided for the Westside Light Rail Project, may be expended, pursuant to section 3(a)(1)(C) of the Federal Transit Act of 1964, as amended, for the development and acquisition of low floor light rail vehicles, and the incremental costs associated with the introduction of the vehicles and facilities modifications on the current alignment.]

[Sec. 364. Notwithstanding any other provision of law, funds made available under the Act and previous Acts, for the intermodal fuel cell bus facility program under the Federal Transit Administration's Discretionary Grants account shall be transferred to that agency's Transit Planning and Research account and be administered in accordance with section 6 of the Federal Transit Act, as amended.]

Sec. [374] 322. Notwithstanding any other provision of law, and except for fixed guideway modernization projects, funds made available by this Act or *previous Acts* under "Federal Transit Administration, Discretionary Grants" for projects specified in [this Act] *any such Acts*, or identified in reports accompanying [this Act] *any such Acts*, not obligated by September 30, 1995, shall be made available for other projects under section 3 of the Federal Transit Act, as amended.

[Sec. 377. TREATMENT OF CERTAIN BUS REVENUE MILEAGE.--For purposes of the apportionment of funds under section 9 of the Federal Transit Act for fiscal year 1993, the total bus revenue vehicle miles provided by the Duke Power Company in the year ending June 30, 1990, shall be treated as having been provided by the City of Durham, North Carolina.]

[Sec. 381. BALTIMORE-WASHINGTON TRANSPORTATION IMPROVEMENTS PROGRAM.--Section 3035(nn)(2) of Public Law 102-240 is amended--

(1) by striking "Waldorf" and inserting "mass transportation improvements to the Waldorf area"; and

(2) by adding after the first sentence the following new sentence: "The transit improvements in the corridor from the Waldorf area to the Washington D.C. area shall be based on the locally preferred alternatives that result from the Southern Maryland Mass Transportation Alternatives Study of the Tri-County Council for Southern Maryland and shall include any additional work needed on that study, detailed planning and engineering to be carried out by the Maryland Department of Transportation in conjunction with the Tri-County Council, advanced land acquisition in the transit corridor, and implementation of interim and long-range transit improvements in the transit corridor.".]

[Sec. 382. Section 3035(ccc) of Public Law 102-240 is amended by striking "the municipality of metropolitan Seattle, Washington" and inserting "a qualified local sponsor".]

Sec. 323. *Notwithstanding any other provision of law, before apportionment of funds made available by this Act under "Federal Transit Administration, Formula Grants," $21,176,000 shall be made available for metropolitan planning activities under section 8(n) of the Federal Transit Act, as amended. (Department of Transportation and Related Agencies Appropriations Act, 1993.)*

APPROPRIATION LANGUAGE

Administrative Expenses

For necessary administrative expenses of the Federal Transit Administration's programs authorized by the Federal Transit Act and 23 U.S.C. chapter 1 in connection with these activities, including hire of passenger motor vehicles and services as authorized by 5 U.S.C. 3109, [$13,400,000] *$21,295,000: Provided,* That no more than [$38,550,000] *$39,457,000* of budget authority shall be available for these purposes. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
ADMINISTRATIVE EXPENSES
Program and Financing (in thousands of dollars)

Identification code: 69–1120–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Program by activities:			
00.01 Direct program	36,941	13,400	21,295
01.01 Reimbursable program	23	25,150	18,162
10.00 Total obligations	36.964	38,550	39.457
Financing:			
25.00 Unobligated balance expiring	59	...	...
39.00 Budget authority (gross)	37,023	38,550	39,457
Budget authority:			
Current:			
40.00 Appropriation	37,000	13,400	21,295
Permanent:			
68.00 Spending authority from offsetting collections	23	25,150	18,162
Relation of obligations to outlays:			
71.00 Total obligations	36,964	38,550	39,457
72.40 Obligated balance, start of year	4,102	3.223	3,855
74.40 Obligated balance, end of year	(3,223)	(3,855)	(3,946)
77.00 Adjustments in expired accounts	(338)	...	...
87.00 Outlays (gross)	37,506	37,918	39,366
Adjustments to budget authority and outlays:			
Deductions for offsetting collections:			
88.00 Federal funds	(23)	(25,150)	(18,162)
89.00 Budget authority (net)	37,000	13,400	21.295
90.00 Outlays (net)	37,483	12,768	21,204

PROGRAM AND PERFORMANCE STATEMENT

ADMINISTRATIVE EXPENSES

For 1994, a program level of $39 million is requested to fund the personnel and other support costs associated with managing and directing FTA program responsibilities including executive direction, policy, budget, financial management, civil rights, public affairs, legal, grants delivery and management, technical assistance and research and demonstration support. The proposed funding implements the Administration's initiatives to control the deficit and improve productivity in the Federal Government by reducing staffing and administrative expenses.

Through 1992, this appropriation was funded solely from general funds. Under the Intermodal Surface Transportation Efficiency Act of 1991, Administrative Expenses can be funded from a combination of trust funds from the Mass Transit Account of the Highway Trust Fund as well as from general funds. Effective in 1993, the trust funds are made available under the account heading of Trust Fund Share of Transit Programs and then paid to this account where they are to be administered with the general funds.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
ADMINISTRATIVE EXPENSES
OBJECT CLASSIFICATION
(in thousands of dollars)

Identification code 69–1120–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Direct obligations:				
	Personnel compensation:			
11.1	Full–time permanent	22,973	8,877	14,315
11.3	Other than full–time permanent	710	144	227
11.5	Other personnel compensation	632	167	255
11.9	Total personnel compensation	24,315	9,188	14,798
12.1	Civilian personnel benefits	3,734	1,460	2,335
21.0	Travel and transportation of persons	973	298	474
22.0	Transportation of things	20	7	5
23.2	Rental payments to others	103	43	57
23.3	Comm., utilities, and miscellaneous charges	544	206	252
24.0	Printing and reproduction	40	8	21
25.2	Other services	5,873	2,050	3,117
26.0	Supplies and materials	219	35	82
31.0	Equipment	1,120	105	153
43.0	Interest and dividends	...	1	1
99.0	Subtotal, direct obligations	36,941	13,400	21,295
99.0	Reimbursable Obligations	23	25,150	18,162
99.9	Total obligations	36,964	38,550	39,457

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
ADMINISTRATIVE EXPENSES

Personnel Summary

	Identification code 69–1120–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Direct: Total compensable workyears:			
1001	Full–time equivalent employment	470	172	261
1005	Full–time equivalent of overtime and holiday hours	1	2	2
	Reimbursable: Total compensable workyears:			
2001	Full–time equivalent employment	...	320	223

Note: Reimbursable full–time equivalent figures listed above reflect personnel funded from Trust Fund Share of Transit Programs.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

ADMINISTRATIVE EXPENSES

Comparative Summary of Activity
(Dollars in Thousands)

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority:			
General Fund	$37,000	$13,400	$21,295
Trust Fund	______	25,150	18,162
Total	$37,000	$38,550	$39,457

Objectives

The Administrative Expenses appropriation funds the personnel and support costs necessary to execute and manage the Federal Transit Administration (FTA) programs. Administrative Expenses were funded from general revenues through FY 1992. Consistent with authorizations in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, this account was split-funded in FY 1993 from general funds and the Mass Transit Account of the Highway Trust Fund. FTA proposes that split-funding be continued in FY 1994.

Resources are requested to accomplish the following:

-- effectively perform all necessary actions to review and approve grant applications, award new grants, and administer all active grants;

-- timely and efficient delivery of both formula and discretionary funds;

-- provide effective grant management oversight and strengthen the monitoring of grantees' expenditures and use of Federal funds;

-- implement new requirements of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991;

-- fund and coordinate with other DOT agencies, projects and programs such as Intelligent Vehicle Highway Systems/Advanced Public Transportation Systems (IVHS/APTS), joint planning regulations, intermodal facilities and information collection/analysis;

- -- transfer funds to and from the Federal Highway Administration consistent with State and local planning decisions;
- -- implement the Americans with Disabilities Act (ADA);
- -- develop and implement the Transit Planning and Research Program;
- -- participate with State air quality agencies and other Federal agencies to implement the Clean Air Act; and
- -- provide for the hiring, development, and support for the staff necessary to accomplish the numerous and various FTA program activities.

Staffing and Program Management

The personnel and financial resources requested in this budget are needed to accomplish the mission of the Federal Transit Administration (FTA) in an effective and efficient manner. FTA planned to support 478 ceiling FTEs in FY 1993. Consistent with the Administration's policy of reducing civilian personnel positions 4 percent over the next three fiscal years, the FY 1993 level was reduced to 473 ceiling FTEs and this submission reflects an additional reduction in FY 1994 to 466 ceiling FTEs. This level of staffing will allow FTA to accomplish its basic mission and to support implementation of ISTEA, ADA and the Clean Air Act.

Financial resources requested to administer FTA's programs in FY 1994 total $39.457 million. Of this amount, $31.745 million (80 percent) is for personnel salaries and benefits, $4.288 million (11 percent) is for DOT Working Capital Fund charges and $3.424 million (9 percent) is for support and administrative costs of the FTA functions.

Federal Advisory Committee Act (FACA) Activities

Two Federal Advisory Committees were established in FY 1992. The Technology Development Advisory Committee was established by ISTEA and charged with assisting the Secretary of Transportation in identifying priority technology development areas and developing guidelines for project development, cost sharing and project execution. The Charter Services Advisory Committee, which completed its activities in FY 1993, was formed to assist FTA in implementing regulations to establish a charter services demonstration program, as directed in ISTEA. The Technology Development Advisory Committee is a continuing activity and will meet periodically for the remainder of ISTEA. Obligations of approximately $16 thousand are expected to be incurred in FY 1994.

Paperwork Activities

The anticipated implementation of a drug and alcohol abuse testing program will result in a modest increase in the paperwork burden on our grantees in FY 1994. However, reductions in other areas and enhanced grants management automation should lessen the impact of these increases.

Computer Security

In order to comply with the provisions of the Computer Security Act of 1987, a comprehensive computer security risk assessment of the FTA Grants Management Information System will be performed in FY 1994 at an estimated cost of $50,000.

Funding Request

The following table summarizes the Administrative Expenses budget request by major object class:

Administrative Expenses (Obligations)
Major Object Classes
(Dollars in Thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Request
Personnel Compensation........	$24,315	$26,927	$27,418
Personnel Benefits............	3,734	4,251	4,327
Travel of Persons.............	973	811	879
Transportation of Things......	20	10	10
Rental Payments to Others.....	103	105	105
Communications, Utilities and Miscellaneous...............	544	466	466
Printing and Reproduction.....	40	40	39
Other Services................	5,873	5,739	5,775
(DOT Working Capital Fund)	<4,344>	<4,339>	<4,288>
Supplies and Materials........	219	150	152
Equipment.....................	1,120	50	285
Interest and Dividends........	0	1	1
Total.................	$36,941	$38,550	$39,457

Summary of Changes

A summary of mandatory changes, price adjustments and program increases between FY 1993 and FY 1994 is presented in the following table:

Summary of Changes from FY 1993 to FY 1994
(Dollars in Thousands)

FY 1993 Appropriation		$ 38,550
Mandatory Adjustments and Price Increases:		
Annualization of 1993 Pay Raise	+ 266	
Within-grade Increases (Including Benefits)	+ 677	
Miscellaneous Compensation and Benefits	+ 82	
Three Percent Administrative Reduction	- 241	
Projected Inflation	+ 72	
Sub-Total		$+ 856
Adjusted Base for FY 1994 Reflecting Mandatory Adjustments and Price Increases		$ 39,406
Program Increases/Decreases:		
New Legislative Requirements	+ 200	
Working Capital Fund	+ 125	
Equipment	+ 235	
Eight FTE Decrease	- 509	
Sub-Total		$+ 51
FY 1994 Request		**$ 39,457**

EXPLANATION OF CHANGES AND ADJUSTMENTS:

Mandatory Adjustments and Price Increases

Annualization of FY 1993 Pay Raise $+ 266

This increase represents the remaining full year cost of the FY 1993 pay raise. The pay raise was effective in January 1993, thus funds for three quarters of the salary and benefits costs for the 3.7 percent pay raise were included in the FY 1993 budget. This amount provides funds to pay the remaining unfunded quarter of that pay raise.

EXPLANATION OF CHANGES AND ADJUSTMENTS (Continued):

Mandatory Adjustments and Price Increases (Continued):

Within-grade Increases	$+ 677

Within-grade increases (WIGs) are mandatory expenses paid to General Schedule (GS) employees who maintain a proficient or better performance rating and have spent the required time at their current step-in-grade. The part of merit pay increases equivalent to WIGs for employees under the Performance Management and Recognition System is included in this amount, which also includes corresponding benefits increases. The estimate for increases is based on the FY 1994 base of 473 FTEs.

Miscellaneous Compensation and Benefits	+ 82

This amount results from minor increases and decreases in terminal leave, overtime, awards, basic benefits, employee compensation fund allowance, transit benefits and personnel change-of-station moves.

Three Percent Administrative Costs Reduction	- 241

This amount reflects a 3 percent reduction in administrative costs from the FY 1993 base and represents the first increment of the 14 percent reduction over the next four years mandated by the Administration.

Projected Inflation	+ 72

This amount reflects projected inflation of approximately 2.7 percent over FY 1993 to cover anticipated general escalations in operating costs for all non-salary expenses except Rent, FTS and WCF.

Program Increases/Decreases

New Legislative Requirements	+ 200

Travel: $100 thousand

During FY 1994, FTA plans major initiatives to implement the provisions of the Americans with Disabilities Act and the Intermodal Surface Transportation Efficiency Act.

Increased travel funds are required to respond to numerous requests for FTA participation in ADA workshops and meetings with transit operators; equipment manufacturers; consumer

EXPLANATION OF CHANGES AND ADJUSTMENTS (Continued):

Mandatory Adjustments and Price Increases (Continued):

groups; and national, State and local organizations. One national conference and two regional workshops are planned to reinforce and augment information regarding ADA implementing actions to a wide audience of diverse participants. It is anticipated that this ADA travel will require $25 thousand.

As intermodal and interagency outreach efforts to implement the ADA, Clean Air Act and ISTEA, on-site workshops will be held throughout the United States with industry groups, transit operators, planning agencies, and governments at the State and local level. This effort will focus on joint transportation improvement projects. The FTA portion of this effort is expected to consume $40 thousand in travel funds.

Increased emphasis will be placed on planning reviews with metropolitan planning organizations (MPOs) in FY 1994. Under the provisions of ISTEA, transportation management areas of urbanized areas of over 200,000 population are required to be certified every three years to assure that each management planning organization is in compliance with applicable Federal law. Travel in connection with MPO planning activities, including those highlighted by the new regulations, will require additional travel funding of $10 thousand in FY 1994.

FTA also plans to implement an aggressive grants management oversight improvement program. Under the risk assessment process, grantees determined to be in a potentially "high risk" category will receive specialized attention involving frequent site visits by FTA staff to monitor program progress and provide expert assistance. In the oversight area, FTA relies on contractor support to perform functions such as Triennial Reviews, financial management oversight and project management oversight. Ideally, FTA staff should accompany contractors on site visits to assure that actions to correct deficiencies and improve grantee performance are satisfactory, cost efficient, economical and effective. In order to accomplish this oversight improvement program, additional travel funds are necessary. It is anticipated that $25 thousand will be required.

Training: $100 thousand

In response to the requirements of the ADA and ISTEA initiatives, FTA proposes an increase in resources to meet emerging training needs. Training needs for disabled employees include instruction in zoom text and other

EXPLANATION OF CHANGES AND ADJUSTMENTS (Continued):

Program Increases/Decreases (Continued):

computer assisted equipment for the vision-impaired, interpreters for persons with hearing impairment during training courses and conferences and disability awareness training seminars for supervisors, managers and employees.

The Department of Transportation is planning several department-wide seminars to address deficiencies in managerial training. These seminars include The Power of Vision (for New Managers), The Power of Vision-SC (for seasoned managers), Leadership Part III, Mentor Training, and Career Counseling and Career Planning.

FTA participation in the SES Candidate Development Program, the DOT Fellows Program, DOT Management Intern Programs, the FTA Management Intern Program and Presidential Management Intern Program is expected to increase in FY 1994. These career development programs will enhance the efficiency and effectiveness of the FTA staff in implementing the new legislation. The estimated cost for this additional ADA, management training and to participate in development programs is $80 thousand.

Training of participants in supplemental reviews of risk areas identified in Triennial Reviews, as recommended by the Oversight Task Force, is another high priority item for FY 1994. Two sessions of 25 attendees each are planned at an average cost of $400 per person. The estimated cost for this training is $20 thousand.

Working Capital Fund	$+ 125

FTA requests an increase of $125 thousand, as discussed below, to allow continuation of critical operations supported under the WCF.

Operation and maintenance of the Grants Management Information System (GMIS) is funded under the WCF. In FY 1993, limited resources required FTA to defer a number of enhancement projects planned to extend the life of the system and address new requirements. Funds in the amount of $100 thousand are requested to continue these projects in FY 1994.

EXPLANATION OF CHANGES AND ADJUSTMENTS (Continued):

Program Increases/Decreases (Continued):

Printing requirements mandated by the new legislation will require increased funding in FY 1994. The majority of this printing is accomplished in-house under the WCF and includes new regulations and Federal Register Notices which are disseminated to grantees and Federal, State and local agencies. Printing of information handouts, brochures and training materials will also be necessary. The estimated cost of these new printing requirements is $25 thousand.

Equipment	$+ 235

FTA planned to complete the final phase of its multi-year office automation equipment replacement program in FY 1993. Because of budget constraints, procurement of hardware and software upgrades at the levels originally planned cannot go forward in FY 1993. The amount requested will partially restore the equipment base in FY 1994, and allow FTA to replace aging workstations and purchase notebook computers ($140,500), acquire new and upgraded software such as Novell Netware, Intel LAN Disk and LOTUS Freelance for Windows ($28,500), and apply the remainder to upgrading communications technology ($66,000).

Eight FTE Decrease	- 509

Consistent with the Administration's policy of reducing civilian personnel 4 percent over the next three years, FTA plans a reduction of eight FTEs in FY 1994, seven ceiling FTEs and one non-ceiling FTE. The resulting savings totals $333 thousand in salaries, benefits and other services affected by a personnel reduction. FTA plans to achieve the reduction by attrition. All of the staffing reductions will be absorbed in our Headquarters.

EXPLANATION OF CHANGES AND ADJUSTMENTS (Continued):

Program Increases/Decreases (Continued):

Summary of Authorized FTA Staffing Levels
(Full-Time Equivalent Employment Ceiling)

Office/Area	FY 1991	FY 1992	Enacted FY 1993	Revised FY 1993	FY 1994
Administrator	6	6	6	6	6
Executive Secretariat	8	8	8	8	7
Chief Counsel	19	20	22	22	22
Public Affairs	6	6	6	6	6
Civil Rights	18	18	18	18	17
Budget and Policy	62	62	65	62	61
Grants Management	56	58	65	63	62
Technical Assistance and Safety	45	45	48	47	46
Administration	57	59	63	64	62
HEADQUARTERS TOTAL:	277	282	301	296	289
Region I	11	14	14	14	14
Region II	18	22	22	22	22
Region III	19	21	21	21	21
Region IV	18	22	22	22	22
Region V	22	26	26	26	26
Region VI	15	16	16	16	16
Region VII	11	12	13	13	13
Region VIII	9	11	10	10	10
Region IX	20	24	23	23	23
Region X	9	10	10	10	10
REGION TOTAL:	152	178	177	177	177
FTA TOTAL:	429	460	478	473	466

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESEARCH, TRAINING, AND HUMAN RESOURCES
Program and Financing (in thousands of dollars)

Identification code 69–1121–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Direct program	12,623	9,284	...
01.01	Reimbursable program	75	...	...
10.00	Total obligations	12,698	9,284	...
	Financing:			
17.00	Recovery of prior year obligations	(628)	...	...
21.40	Unobligated balance available, start of year	(271)	(9,284)	...
22.00	Unobligated balance transferred, net	(8)		
24.40	Unobligated balance available, end of year	9,284	...	...
39.00	Budget authority (gross)	21,075	...	...
	Budget authority:			
	Current:			
40.00	Appropriation	21,000	...	...
	Permanent:			
68.00	Spending authority from offsetting collections	75	...	...
	Relation of obligations to outlays:			
71.00	Total obligations	12,698	9,284	...
72.40	Obligated balance, start of year	32,202	32,814	25,475
74.40	Obligated balance, end of year	(32,814)	(25,475)	(12,846)
78.00	Adjustments in unexpired accounts	(628)	...	...
87.00	Outlays (gross)	11,458	16,623	12,629
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal funds	(75)	...	...
89.00	Budget authority (net)	21,000	...	...
90.00	Outlays (net)	11,383	16,623	12,629

PROGRAM AND PERFORMANCE STATEMENT

RESEARCH, TRAINING AND HUMAN RESOURCES

Through 1992, this appropriation was financed from general funds. The activities of this account, beginning in 1993, are financed in the Transit Planning and Research account along with other activities authorized by the Intermodal Surface Transportation Efficiency Act of 1991.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESEARCH, TRAINING, AND HUMAN RESOURCES
OBJECT CLASSIFICATION
(in thousands of dollars)

Identification code 69–1121–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Direct obligations:			
25.2 Other services	7,442	6,963	...
41.0 Grants, subsidies, and contributions	5,181	2,321	...
99.0 Subtotal, direct obligations	12,623	9,284	...
99.0 Reimbursable obligations	75		
99.9 Total obligations	12,698	9,284	...

APPROPRIATION LANGUAGE

Interstate Transfer Grants - Transit

For necessary expenses to carry out the provisions of 23 U.S.C. 103(e)(4) related to transit projects, [$75,000,000] *$45,000,000*, to remain available until expended. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
INTERSTATE TRANSFER GRANTS – TRANSIT
Program and Financing (in thousands of dollars)

Identification code 69–1127–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Program by activities:			
10.00 Total obligations (object class 41.0)	154,832	111,291	45,000
Financing:			
17.00 Recovery of prior year obligations	(1,663)	...	...
21.40 Unobligated balance available, start of year	(29,160)	(36,291)	...
22.00 Unobligated balance transferred, net	(300)	...	...
24.40 Unobligated balance available, end of year	36,291	...	...
40.00 Budget authority (appropriation)	160,000	75,000	45,000
Relation of obligations to outlays:			
71.00 Total obligations	154,832	111,291	45,000
72.40 Obligated balance, start of year	394,584	309,713	267,019
74.40 Obligated balance, end of year	(309,713)	(267,019)	(203,979)
77.00 Adjustments in expired accounts	(123)	...	...
78.00 Adjustments in unexpired accounts	(1,663)	...	...
90.00 Outlays	237,917	153,985	108,040

PROGRAM AND PERFORMANCE STATEMENT

INTERSTATE TRANSFER GRANTS - TRANSIT

For 1994, $45 million in general funds is requested to fund transit capital projects substituted for previously withdrawn segments of the Interstate Highway System. This would leave a total funding level of $38 million needed in the future to complete the Federal funding commitment for this program. Funding will be apportioned according to the cost to complete transit substitute projects as follows: New York - 54 percent, Baltimore, Maryland - 23 percent, Portland, Oregon - 7 percent, and all others - 16 percent.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

INTERSTATE TRANSFER GRANTS - TRANSIT

Comparative Summary of Activity
(Dollars in Thousands)

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Appropriation	$160,000	$75,000	$45,000

The Interstate Transfer Grants - Transit program provides Federal financing to allow States and localities which withdrew nonessential Interstate segments to fund substituted public transportation capital improvements under the provisions of 23 U.S.C. 103(e)(4). Through FY 1992, States and localities have withdrawn about $6.5 billion in previously approved segments of the Interstate System and substituted transit capital projects in their place.

For FY 1993, ISTEA authorized $164.8 million for completion of the transit portion of the Interstate Transfer Grants program. However, ISTEA does not authorize funds for FY 1994 and beyond. Funding in FY 1993, at $75 million, was not enough to fully complete transit projects funded under this program. FTA estimates a cost to complete funding for this program at $83.5 million for FY 1994. FTA requests $45 million in FY 1994, and plans to request the remaining portion, about $38 million in FY 1995 to complete funding for the transit projects under this program. This FY 1994 amount includes $44.8 million for the costs to complete project funding and a one-half percent takedown of $.2 million for Section 23 oversight activities.

In accordance with the ISTEA, the FY 1994 appropriation for transit substitute projects will "... be apportioned in accordance with cost estimates adjusted by the Secretary." The requested $45 million will be apportioned among the remaining 16 areas eligible for transit substitute funding in proportion to the remaining cost to complete as follows:

INTERSTATE SUBSTITUTE TRANSIT GRANTS COST TO COMPLETE

WITHDRAWAL AREA	ESTIMATED TRANSIT COST TO COMPLETE AS OF 9/30/93
SACRAMENTO, CA	$85,881
SAN FRANCISCO, CA	2,507,425
KILLINGLY, CT	302,728
HARTFORD, CT	906,509
WASHINGTON, D.C.	158,235
CHICAGO, IL	1,879,023
WATERLOO, IA	135,597
BALTIMORE, MD	19,632,202
BOSTON, MA	1,142,020
NEW YORK CITY, N.J.	101,482
ALBANY, NY	35,222
NEW YORK, N.Y.	44,864,500
CLEVELAND, OH	3,073,007
PORTLAND, OR	4,704,179
PROVIDENCE, RI	2,563,632
MEMPHIS, TN	1,020,773
SUBTOTAL	$83,112,415
SECTION 23 TAKEDOWN	417,650
TOTAL	$83,530,065

APPROPRIATION LANGUAGE

Washington Metro

For necessary expenses to carry out the provisions of section 14 of Public Law 96-184 and Public Law 101-551, [$170,000,000] *$200,000,000*, to remain available until expended. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
WASHINGTON METRO
Program and Financing (in thousands of dollars)

Identification code 69–1128–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Program by activities:			
10.00 Total obligations (object class 41.0)	123,380	171,407	200,000
Financing:			
21.40 Unobligated balance available, start of year	(787)	(1,407)	...
24.40 Unobligated balance available, end of year	1,407	...	...
40.00 Budget authority (appropriation)	124,000	170,000	200,000
Relation of obligations to outlays:			
71.00 Total obligations	123,380	171,407	200,000
72.40 Obligated balance, start of year	430,021	389,954	382,453
74.40 Obligated balance, end of year	(389,954)	(382,453)	(444,326)
90.00 Outlays	163,447	178,908	138,127

PROGRAM AND PERFORMANCE STATEMENT

WASHINGTON METRO

The National Capital Transportation Amendments of 1979 (Stark-Harris), authorized $1.7 billion in Federal funds to support the construction of the Washington Metrorail system. In addition, the National Capital Transportation Amendments of 1990 authorized another $1.3 billion in Federal capital assistance to complete construction of the planned 103-mile system.

For 1994, $200 million is requested under the 1990 authorization to continue funding the 103-mile system under Federal Transit Administration's Full Funding Grant Agreement with Washington Metropolitan Area Transit Authority. These funds will be used to initiate or continue construction of the Franconia/Springfield and Glenmont lines, and to provide for management and consultants, real estate acquisition, and other expenses such as contingencies and insurance.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS
Object Classification
(in thousands of dollars)

Identification code 69–1129–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
41.0	Grants, subsidies, and contributions	1,562,048	667,122	725,916
99.0	Reimbursable obligations	...	1,049,025	1,129,951
99.9	Total obligations	1,562,048	1,716,147	1,855,867

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

WASHINGTON METRO

Comparative Summary of Activity
(Dollars in Thousands)

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Appropriation	$124,000	$170,000	$200,000

Public Law 96-184, the National Capital Transportation Amendments of 1979 (Stark-Harris legislation), authorized a total of $1.7 billion in Federal capital assistance to the Washington Metropolitan Transit Authority (WMATA) for construction of the Washington Metrorail System starting in FY 1982. It also authorized additional Federal participation in the retirement of bonds issued by WMATA. In addition, Public Law 101-551, the National Capital Transportation Amendments of 1990, authorizes an additional $1.3 billion in Federal capital assistance for construction of the remaining 13.5-miles of the planned 103-mile Washington Metrorail System.

In FY 1993, $170 million was appropriated for WMATA. This funding includes $16.1 million from Stark-Harris and $153.9 million in funds made available by the National Capital Transportation Amendments of 1990. In FY 1994, we are requesting $200 million under P.L. 101-551, to support the "fast track" construction of the Washington Metrorail System.

89.5-Mile System

In FY 1993, the remaining balance of $16.1 million in funding under the $1.7 billion Stark-Harris authorization was appropriated. This exhausts the authorization and completes the Federal commitment under the 1986 Full Funding Grant Agreement for the 89.5 mile component of the 103 mile system.

Construction Beyond 89.5-Miles

To complete the 103-mile system, the Stark-Harris authorization was amended on November 15, 1990, (P.L.101-551) to add an additional $1.3 billion in Federal funds over an eight-year period or more, to complete the system. The local matching share under the $1.3 billion authorization extension has been raised to 37.5 percent (62.5 percent Federal). Under the original Stark-Harris legislation, the matching ratio was 20 percent local and 80 percent Federal.

Under the $1.3 billion authorization, the FTA and WMATA have agreed upon the following "fast track" construction schedule for the final 13.5 miles: $96 million in FY 1992, $154 million in FY 1993, $200 million for five years beginning in FY 1994, and $50 million in FY 1999. The "fast track" construction schedule plans completion of the remaining 13.5 miles in eight years by constructing more than one segment at a time, thereby assuring that the entire 103-mile system can be completed within the $1.3 billion reauthorization. Funding appropriated in FY 1993 and requested in FY 1994 under the "fast track" plan will be utilized as follows:

	(In millions of dollars)	
	FY 1993	FY 1994
Project management, consultants, start-up, force account, and work equipment	$ 3.0	$10.5
Franconia route construction	87.9	39.3
Glenmont route construction	37.7	45.9
U Street/Fort Totten engineering and construction	16.2	53.4
Branch Avenue engineering and construction	9.1	50.9
Total Federal Share	$153.9	$200.0

(Note: Contingency and insurance costs are included in individual line estimates.)

Total System Cost

Upon completion of a 103-mile system, it is estimated that a total of $12.6 billion of capital (local and Federal) will have been invested in the WMATA rail system as shown in Table 1. The Federal Government's portion will be $9.0 billion. This figure includes Stark-Harris funding from the 1990 reauthorization, and the interest and principal payments on the guaranteed bonds. The Federal commitment on the bonds includes: 1) a $51.7 million annual payment to WMATA for the two-thirds Federal share of interest payments on $997 million in bonds that become due in the years 2012 through 2014; and 2) $665 million for the two-thirds Federal share of principal on those bonds.

TABLE 1

WASHINGTON METRO FUNDING SUMMARY
(89.5 Mile System)

(In millions of dollars)

			LOCAL	FEDERAL	TOTAL
FUNDS APPROPRIATED (MATCH)					
Direct Appropriations (1/3–2/3's)			$573.5	$1,147.0	$1,720.5
Mid-City Line add-on (100% DC)			3.0	0.0	3.0
Add-ons (100% local)			12.9	0.0	12.9
Elderly and Handicapped Facilities (20%–80%)			13.0	52.0	65.0
Arlington Cemetery Station (100% Federal)			0.0	7.4	7.4
Federal-Aid Urban Systems (10%–90%)			3.2	28.5	31.7
Interstate Transfer Grants – Transit			453.8	2,155.8	2,609.6
Stark-Harris (20%–80%)	(Local)	(Federal)			
FY 1983	$60.0	$240.0			
FY 1984	62.5	250.0			
FY 1985	62.5	250.0			
FY 1986	54.0	217.2			
FY 1987	50.0	201.1			
FY 1988	44.9	180.5			
FY 1989	41.8	168.0			
FY 1990	21.1	84.7			
FY 1990 drug assessment	N/A	0.3			
FY 1991	15.9	64.1			
FY 1992	7.0	28.0			
FY 1993	4.0	16.1			
FY 1986–93 PMO (100% Fed)	N/A	[$4.8]			
Subtotal, Stark-Harris 1/			423.7	1,700.0	2,123.7
Matching Bond Sales			48.5	0.0	48.5
SUBTOTAL – FUNDS APPROPRIATED TO DATE (FY 1993)			1,531.6	5,090.7	6,622.3
BOND OBLIGATIONS (FY 1979 – 2014)					
Interest Payments on Bonds (1/3–2/3)			982.7	1,965.4	2,948.1
Principal Payments on Bonds (1/3–2/3)			332.4	664.7	997.1
SUBTOTAL – BOND OBLIGATIONS			1,315.1	2,630.1	3,945.2
TOTAL COST FOR 89.5 MILE SYSTEM			$2,846.7	$7,720.8	$10,567.5

1/ The Stark-Harris drawdown does not reflect the sequestration in fiscal year 1986 ($9.8 million). With an appropriation of $16.041 million in FY 1993, the $1.7 billion Stark-Harris authorization was fully funded.

WASHINGTON METRO FUNDING SUMMARY
(13.5 Mile System)

			(In millions of dollars)		
			LOCAL	FEDERAL	TOTAL
NATIONAL CAPITAL AMENDMENTS OF 1990					
REMAINING 13.5 MILES (37.5%-62.5%)			$776.1	$1,300.0	$2,076.1
FUNDS APPROPRIATED	(Local)	(Federal)			
FY 1992	$57.3	$96.0			
FY 1993	$91.9	153.9			
FY 1994 REQUEST	$119.4	200.0			
FY 1992-94 PMO (100% Fed)	(N/A)	[$2.2]			
SUBTOTAL, NATIONAL CAPTIAL			268.6	449.9	718.5
REMAINING NATIONAL CAPITAL AMENDMENTS					
Available for future appropriations			507.5	850.1	1,357.6
PMO			(N/A)	[4.3]	[4.3]
TOTAL COST FOR 13.5 MILE SYSTEM			$776.1	$1,300.0	$2.076.1
GRAND TOTAL, 103 MILE SYSTEM			$3,622.8	$9,020.8	$12,643.6

APPROPRIATION LANGUAGE

Formula Grants

For necessary expenses to carry out the provisions of sections 9, 16(b)(2), and 18 of the Federal Transit Act, to remain available until expended,[$650,975,000] *$625,916,000*: *Provided*, That no more than [$1,700,000,000] *$2,454,867,000* of budget authority shall be available for these purposes: *Provided further*, That, notwithstanding any other provision of law, of the funds provided under this head for formula grants no more than $802,278,000 may be used for operating assistance under section 9(k)(2) of the Federal Transit Act. *(Department of Transportation and Related Agencies Appropriations Act 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS

Program and Financing (in thousands of dollars)

Identification code 69–1129–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
	Direct program:			
00.01	Urban formula grants	1,449,018	617,758	687,176
00.02	Nonurban formula grants	112,154	49,349	38.740
00.03	Rural transportation assistance	876	15	...
00.91	Total direct program	1,562,048	667,122	725,916
01.01	Reimbursable program	...	1,049,025	1,129,951
10.00	Total obligations	1,562,048	1,716,147	1,855,867
	Financing:			
17.00	Recovery of prior year obligations	(137,169)	...	...
21.40	Unobligated balance available, start of year	(376,315)	(466,147)	(450,000)
22.00	Unobligated balance transferred, net	308	...	...
24.40	Unobligated balance available, end of year	466,147	450,000	350,000
25.00	Unobligated balance expiring	4,981	...	...
39.00	Budget authority (gross)	1,520,000	1,700,000	1,755,867
	Budget authority:			
	Current:			
40.00	Appropriation	1,520,000	650,975	625,916
	Permanent:			
68.00	Spending authority from offsetting collections	...	1,049,025	1,129,951
	Relation of obligations to outlays:			
71.00	Total obligations	1,562,048	1,716,147	1,855,867
72.40	Obligated balance, start of year	2,932,748	2,489,378	2,411,276
74.40	Obligated balance. end of year	(2,489.378)	(2,411,276)	(2,499.400)
78.00	Adjustments in unexpired accounts	(137,169)	...	...
87.00	Outlays (gross)	1,868.249	1,794,249	1,767,743
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.30	Trust funds	...	(1,049,025)	(1,129,951)
89.00	Budget authority (net)	1,520,000	650,975	625,916
90.00	Outlays (net)	1,868,249	745.224	637,792

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS
SUMMARY OF BUDGET AUTHORITY AND OUTLAYS
(in thousands of dollars)

	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Enacted/requested:			
Budget authority	1,520,000	650,975	625,916
Outlays	1,868,249	745,224	637,792
Stimulus and other supplemental proposals:			
Budget authority	...	466,490	...
Outlays	...	8,267	105,659
Investment proposal:			
Budget authority	...	...	699,000
Outlays	...	...	34,950
Total:			
Budget authority	1,520,000	1,117,465	1,324,916
Outlays	1,868,249	753,491	778,401

PROGRAM AND PERFORMANCE STATEMENT

FORMULA GRANTS

In 1994, a total of $2.5 billion is requested for Formula Grants, which includes $699 million in funds contained in the Administration's investment proposal for Formula Grants. These funds may be used for a wide variety of mass transit purposes including planning, construction of facilities, purchase of buses and railcars, and in some cases for operating assistance. Activities funded under this account are:

Urban Formula Grants (Sections 9 and 9B). - $2.2 billion will be apportioned by legislative formula for use in urbanized areas with populations of more than 50,000. Not to exceed $802 million of that amount will be available for operating assistance in urbanized areas. Most urban formula grants funds not available for operating assistance may be transferred to the Federal Highway Administration for use on highway projects at State and local discretion.

Nonurban Formula Grants (Section 18). - $131 million will be apportioned according to a legislative formula based on each State's nonurban population to areas with populations of less than 50,000.

Elderly and Disabled (Section 16). - $59 million will be apportioned for the Elderly and Disabled program to each State according to a legislatively required formula to assist in providing transportation to the elderly and persons with disabilities. Funds may be made available to private nonprofit organizations and to public bodies when certain requirements are met.

Metropolitan Planning Grants. (Section 8). - $21.2 million will be apportioned to States by existing statutory formula for the purposes of metropolitan planning activities. This amount is in addition to funds provided from Transit Planning and Research for this purpose.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS

Object Classification
(in thousands of dollars)

Identification code 69–1129–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
41.0	Grants, subsidies, and contributions	1,562,048	667,122	725,916
99.0	Reimbursable obligations	...	1,049,025	1,129,951
99.9	Total obligations	1,562,048	1,716,147	1,855.867

APPROPRIATION LANGUAGE

Formula Grants - Investment Proposal

In addition to amounts otherwise available under this heading, and subject to the same terms and conditions, for necessary expenses to carry out the provisions of sections 9, 16(b)(2), and 18 of the Federal Transit Act, as amended, to remain available until expended, $699,000,000. Provided, That, notwithstanding any other provision of law, none of the funds provided under this head may be used for operating assistance under section 9(k)(2) of the Federal Transit Act.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS INVESTMENT PROPOSAL
Program and Financing (in thousands of dollars)

Identification code 69–1129–7–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Program by activities:			
Direct program:			
00.01 Urban formula grants	...	...	651,703
00.02 Elderly & disabled grants	...	...	9,367
00.03 Non–urban formula grants	...	...	37,930
10.00 Total obligations (object class 41.0)	...	...	699,000
Financing:			
40.00 Budget authority (appropriation)	...	...	699,000
Relation of obligations to outlays:			
71.00 Total obligations	...	...	699,000
74.40 Obligated balance, end of year	...	...	(664,050)
90.00 Outlays	...	...	34,950

PROGRAM AND PERFORMANCE

FORMULA GRANTS - INVESTMENT PROPOSAL

The 1994 Federal Transit Administration (FTA) investment initiative proposes an additional $699 million for FTA's Formula Grants Program. These funds, together with $2.7 billion in capital grants included elsewhere in this budget, will provide a total of $3.4 billion in capital assistance, excluding grants for Washington Metrorail and the Interstate Transfer Program. This is an increase of about $800 million, or 30 percent, in capital funding over the enacted 1993 level.

These funds, together with State and local investment, will be used to upgrade rail facilities and equipment, and replace rail rolling stock, thus beginning to eliminate the rail investment backlog. These funds will also fund bus and van replacement and bus facility rehabilitation. The new vehicles, needed to replace the aging U.S. transit fleet, will not only be safer and contribute to improved air quality, but will also be more accessible to disable persons.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

FORMULA GRANTS

Comparative Summary of Activity
(Dollars in Thousands)

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority:			
General Fund	$1,520,000	$650,975	$1,324,916
Trust Fund	463,733a/	1,049,025	1,129,951
Total	$1,983,733	$1,700,000	$2,454,867

Program Structure

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 authorizes funds to carry out sections 9, 9B, 11(b), 12(a), 16(b), 18, 23, and 26 of the Federal Transit Act, and substitute transit projects under section 103(e)(4) of title 23, United States Code. These authorized programs are established as takedowns from the amounts made available for Formula Grants in any fiscal year. The FY 1994 request for this program, prior to takedowns, amounts to $2.6 billion of the $3.1 billion authorized in ISTEA.

The section 11(b) University Transportation Centers; section 12(a) Administrative Expenses; Interstate Transfer Grants-Transit; and section 26 Transit Planning and Research program have individual justifications under their separate headings.

Section 23 of the Federal Transit Act, as amended authorizes take down of 1/2 of one percent from section 9 and section 18 for project management oversight, safety, procurement, management and financial compliance reviews and audits.

Funding by Activity

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Section 8, Planning	-0-	-0-	$21,176
Section 9, Urban Formula	$1,822,762	$1,560,539	2,244,097
Section 16, Elderly and Disabled	54,884	48,636	58,985
Section 18, Nonurban Formula	106,087	90,825	130,609
Grand Total, Formula	$1,983,733	$1,700,000	$2,454,867

a/ Urban Formula section 9B grants ($408,849) and Elderly and Disabled grants ($54,884) were funded from Discretionary Grants in FY 1992, but are shown here for comparability.

The FY 1994 budget request of $2.5 billion, including $699 million in funds for the Administration's investment proposal, represents an increase of $755 million or a 44 percent increase over enacted funding made available in FY 1993. This will provide capital and planning resources to address capital needs for bus replacement, facility construction and fixed guideway modernization. It will also assist in meeting the capital costs related to Clean Air Act and ADA implementation. In addition, this funding level will provide a level of operating assistance consistent with the past 7 years.

Section 8, Metropolitan Planning

A request of $21.2 million is included for section 8 planning activities in FY 1994 under the Formula Grants program. These funds, together with $38.3 million set-aside under the Transit Planning and Research program, that total $59.4 million, will assist in the implementing ISTEA requirements in the expanded role and responsibilities of the Metropolitan Planning Organizations (MPOs) within the Nation's urban areas.

The combined funding of $59.4 million for the MPO's planning activities equates to the ISTEA statutory level allowed for MPO planning. Section 8 planning funds will be apportioned to the States by statutory formula for the purposes of planning activities under Section 8(n) of the Federal Transit Act, as amended.

Section 9, Urban Formula

Operating Assistance - In FY 1994, this budget proposes funding at $802,278,000 which would maintain nearly the same level as the last seven years.

The following table shows the percentage of total operating costs covered by Federal operating assistance:

Area Size in Population	Federal Assistance As Percentage of Operating Expenses (1991)
Over 1 million	3.8%
500,000 - 1 million	11.5%
200,000 - 500,000	16.2%
under 200,000	20.0%
National Total	5.1%

Capital Assistance - In FY 1994, $1.4 billion is proposed for capital assistance, an increase of $684 million over the FY 1993 enacted level of $758 million. In FY 1993, the amount available for capital formula grants was $262 million less than the FY 1992 funding of $1.02 billion. The requested FY 1994 budget not only brings capital funding back up to levels funded in the early 1990's but increases capital formula funding. This is consistent with the Administration's goal to increase investment in the Nation's infrastructure. The requested increase for FY 1994 will be used for a wide variety of mass transit projects, which provide for routine capital replacement and are the backbone for transit operations.

Funds will be used to upgrade rail facilities and equipment, and replace rail rolling stock, thus beginning to eliminate the rail investment backlog. These funds will also fund bus and van replacement and bus facility rehabilitation. The newer vehicles, to replace the aging U.S. transit fleet, will be safer, more reliable, contribute to improved air quality, and be accessible to person with disabilities.

Bus Capital

Bus services remain the mainstay of transit systems in nearly all urbanized areas. Ninety-five percent of the urbanized areas in which transit is provided have only bus service. In FY 1991, there were about 5.0 billion urban transit bus rides, about 65 percent of all transit trips.

In 1991, the total bus and paratransit fleet was over 55,000 and transit systems had over 600 maintenance facilities for bus and paratransit systems. In order to assure that transit service remains safe, clean and reliable, transit operators must continually recapitalize this investment by replacing overage vehicles and assuring that bus facilities remain in proper condition. The current average age of standard transit buses is 8.2 years. The increase in Federal capital funding over the FY 1993 level will provide the opportunity for grantees to replace overage buses, thus bringing fleet age more in line with the FTA recommended 6 year average fleet age standard. In addition, funds will be available for much needed facility investments.

In some urbanized areas alternative fuel buses may be required to comply with the Clean Air Act. Section 9 funds will be the primary source of funds to cover the costs of alternative fuel buses and retrofitted bus facilities to handle alternative fuels.

Fixed Guideway Modernization

The major goal of the fixed guideway modernization activity remains the stabilization and restoration of conditions on the Nation's older fixed guideway (rail) systems. The Rail Modernization Study, released in 1987, estimated that the total cost to restore the Nation's rail systems to good condition over a ten year period would be about $18 billion in 1983 dollars. Information from the Rail Modernization Study indicates that about 40 percent of this cost is for recapitalization to maintain conditions and the rest to improve deteriorated conditions to an appropriate level.

The 1992 Section 308 Report estimates that, in 1992 dollars, about $950 million per year is necessary to maintain rail conditions. This includes the costs to make stations and rail cars accessible to meet ADA requirements. The Report further estimates that another $1.37 billion is needed to improve conditions to a good state of repair.

Recent levels of Federal investment have been sufficient to meet the goal of stabilizing rail conditions, and made modest progress toward meeting the goal of improving conditions. However, the FY 1994 request will make even more progress toward improving overall conditions, particularly when combined with State and local funds. State and local governments recently have been providing a significant amount of funding in addition to that needed to match Federal funds for fixed guideway modernization. Together these resources should permit a significant share of the backlog to be eliminated.

Section 16, Elderly and Disabled

In FY 1994 this budget proposes $59.0 million, an increase of approximately $10 million over the enacted FY 1993 level, to support the Section 16 program. This is consistent with ISTEA which authorizes for this program 1.34 percent of the total funding made available for the Federal Transit Administration, excluding funding for the WMATA.

Funds under this program are available for capital expenses to support the provision of transportation services to meet the special needs of elderly persons and persons with disabilities. Such expenses include the purchase of vehicles and equipment, and the acquisition of transportation services under a contract, lease or other arrangement.

The requirement that all fixed route transit systems provide paratransit service under the ADA has encouraged increased coordination among providers of specialized transportation services and those providing fixed route service. Section 16 funds are available to local public bodies, including transit providers, that have been designated by the State as the lead agency to coordinate specialized transportation service.

Increased funding in FY 1994 will provide capital assistance to approximately half of the 3,500 agencies nationwide that make up the network of services provided to elderly persons and individuals with disabilities under this program.

Section 18, Nonurban Formula

This budget requests $130.6 million to fund activities under the section 18 nonurban formula program, a $39.8 million increase over the FY 1993 enacted level. These additional funds are needed to assist the States in carrying out essential transit service in rural areas. In FY 1994, ISTEA requires that States spend a statutory level of 15 percent for intercity bus transportation. This increased funding will assist States in meeting the new requirement to support intercity bus service and help meet the needs of local rural public transportation services. The section 18 program assists the over 1,000 rural transit operators to provide service using over 10,000 vehicles. About 110 million transit trips are provided per year.

The absolute amount of funds programmed by the States for operating assistance under this program has remained virtually constant over the years, while funding for capital replacement was deferred in the face of constrained budgets during the 1980's. Because formula funding for replacement vehicles and facilities was unavailable, the States looked increasingly to section 3 to meet the capital needs of nonurbanized areas during this period. The proposed funding level would enable operators in nonurbanized areas to replace equipment as it meets its useful life and within the Section 18 funding resource.

APPROPRIATION LANGUAGE

University Transportation Centers

For necessary expenses for University Transportation Centers as authorized by Section 11(b) of the Federal Transit Act, to remain available until expended, [$2,025,000] *$3,238,000*: *Provided*, That no more than $6,000,000 of budget authority shall be available for these purposes. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
UNIVERSITY TRANSPORTATION CENTERS
Program and Financing (in thousands of dollars)

Identification code 69–1136–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Direct program	...	2,025	3,238
01.01	Reimbursable program	...	3,975	2,762
10.00	Total obligations	...	6.000	6.000
	Financing:			
39.00	Budget authority (gross)	...	6,000	6,000
	Budget authority:			
	Current:			
40.00	Appropriation	...	2,025	3,238
	Permanent:			
68.00	Spending authority from offsetting collections	...	3,975	2,762
	Relation of obligations to outlays:			
71.00	Total obligations	...	6.000	6.000
72.40	Obligated balance, start of year	...	...	4,800
74.40	Obligated balance, end of year	...	(4,800)	(7,680)
87.00	Outlays (gross)	...	1,200	3,120
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal funds	...	(3,975)	(2,762)
89.00	Budget authority (net)	...	2,025	3,238
90.00	Outlays (net)	...	(2,775)	358

PROGRAM AND PERFORMANCE STATEMENT

UNIVERSITY TRANSPORTATION CENTERS

For 1994, $6 million is requested for the University Transportation Centers program which will be combined with funding from the Federal Highway Administration to support research, education and technology transfer activities aimed at addressing regional and national transportation problems.

The Intermodal Surface Transportation Efficiency Act of 1991 allows this account to be funded from a combination of trust funds from the Mass Transit Account of the Highway Trust Fund as well as from general funds. The trust funds are made available under the account heading of Trust Fund Share of Transit Programs and then paid to this account where they are administered with the general funds.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
UNIVERSITY TRANSPORTATION CENTERS
Object Classification
(in thousands of dollars)

Identification code 69–1136–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
41.0 Grants, subsidies, and contributions	...	2,025	3,238
99.0 Reimbursable obligations	...	3,975	2,762
99.9 Total obligations	...	6,000	6,000

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

UNIVERSITY TRANSPORTATION CENTERS

Comparative Summary of Activity
(Dollars in Thousands)

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority			
General Fund		$2,025	$3,238
Trust Fund	$6,985	3,975	2,762
Total	$6,985	$6,000	$6,000

Background

Section 11(b) of the Federal Transit Act, as amended, authorizes funding for University Transportation Centers (UTC). The mission of the program is to advance U. S. expertise in the many disciplines comprising transportation through the mechanisms of research, education and technology transfer at institutes of higher learning. There are thirteen University Transportation Centers; ten regional centers and three national centers. The Regional Centers are:

Region I	Massachusetts Institute of Technology
Region II	City University of New York
Region III	Pennsylvania State University
Region IV	University of North Carolina
Region V	University of Michigan
Region VI	Texas A&M State University
Region VII	Iowa State University
Region VIII	North Dakota State University
Region IX	University of California, Berkeley
Region X	University of Washington

The National Centers are:

- National Center for Transportation and Industrial Productivity at New Jersey Institute of Technology,
- National Center for Transportation Management, Research & Development at Morgan State University, and
- Mack-Blackwell National Rural Transportation Study Center at the University of Arkansas.

From the Highway Trust Fund, the Federal Highway Administration is authorized to appropriate $6 million annually through FY 1997 for the UTC's. This amount is combined with the Federal Transit Administration's appropriation.

Objective and Approach

The objectives of the program are to:

- address current and future transportation challenges and issues through interdisciplinary, applied and basic research,
- provide an interdisciplinary education for tomorrow's transportation professionals and advance the skills of today's professionals, and
- disseminate the results to all prospective users of the products of the research.

The UTC program has a integrated management team. The Researchand Special Programs Administration heads the team, with the Federal Transit Administration and the Federal Highway Administration comprising the other two team members. An annual grant award is made each year to each of the Centers. This is based on submission of an annual program plan for that year and an evaluation of the successful completion of the previous year's plan.

Accomplishments to Date

Over 350 research projects have been funded; about forty percent of these are completed, with the balance still outstanding. The research is a mix of highway, transit and intermodal projects; some are doctoral dissertations though many are to fulfill pressing research needs at State transportation departments and local agencies. More than 1,000 university students and 350 faculty members have been involved with the program.

The three new national centers are in the process of developing their first program plans.

Planned Accomplishments for FY 1994

The program will continue to emphasize transit research and research that is directly applicable to real world problems. This will be the first year of research from the three new national centers. The education, diversity and technology transfer programs will continue to grow.

The management team will develop a re-competition package for the Centers program. This re-competition activity will take place starting late in FY 1994 and in FY 1995.

APPROPRIATION LANGUAGE

Transit Planning and Research

For necessary expenses for transit planning and research as authorized by Section 26 of the Federal Transit Act, to remain available until expended, [$29,000,000] *$45,875,000*: *Provided,* That no more than $85,000,000 of budget authority shall be available for these purposes: *Provided further,* That [of the funds made available to carry out the national program under section 26(b) of the Federal Transit Act, not less than $900,000 shall be made available to reimburse the City of New York for funds granted for planning activities related to the proposed 42nd Street trolley] *there may be credited to this appropriation funds received from States, counties, municipalities, other public authorities, and private sources, for expenses incurred for training. (Department of Transportation and Related Agencies Appropriations Act 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRANSIT PLANNING AND RESEARCH
Program and Financing (in thousands of dollars)

Identification code 69–1137–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Direct program	...	29,000	45,875
01.01	Reimbursable program	...	56,000	39,125
10.00	Total obligations	...	85,000	85,000
	Financing:			
39.00	Budget authority (gross)	...	85,000	85,000
	Budget authority:			
	Current:			
40.00	Appropriation	...	29,000	45,875
	Permanent:			
68.00	Spending authority from offsetting collections	...	56,000	39,125
	Relation of obligations to outlays:			
71.00	Total obligations	...	85,000	85,000
72.40	Obligated balance, start of year	...	...	76,925
74.40	Obligated balance, end of year	...	(76,925)	(116,450)
87.00	Outlays (gross)	...	8,075	45,475
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal funds	...	(56,000)	(39,125)
89.00	Budget authority (net)	...	29,000	45,875
90.00	Outlays (net)	...	(47,925)	6,350

PROGRAM AND PERFORMANCE STATEMENT

TRANSIT PLANNING AND RESEARCH

Funding of $85 million is requested for the Transit Planning and Research (TPR) Program to fund a wide variety of activities. Under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, 45 percent of the TPR funding must be apportioned to States for Metropolitan Planning (Section 8), 5 percent for the Rural Transit Assistance Program (Section 18(h)), 10 percent for the Transit Cooperative Research Program, 10 percent for the State TPR Program, and 30 percent for the National TPR Program. Section 8 Metropolitan Planning grants are also proposed to receive an additional $21.2 million under the Formula Grant appropriation.

Under the national component of the program, the FTA is a catalyst in the research, development and deployment of transportation methods and technologies addressing such issues as accessibility for the disabled, air quality, traffic congestion and service and operational improvements. Funds for the State and local component of the program improve the State and local planning process and allow them to participate in research efforts.

The ISTEA allows the account to be funded from a combination of trust funds from the Mass Transit Account of the Highway Trust Funds as well as from general funds. The trust funds are made available under the account heading of Trust Fund Share of Transit Programs and then paid to this account where they are administered with the general funds.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRANSIT PLANNING AND RESEARCH
Object Classification
(in thousands of dollars)

Identification code 69–1137–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Direct obligations:			
25.2 Other services	...	7,250	11,468
41.0 Grants, subsidies, and contributions	...	21,750	34,407
99.0 Subtotal, direct obligations	...	29,000	45,875
99.0 Reimbursable obligations	...	56,000	39,125
99.9 Total obligations	...	85,000	85,000

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

TRANSIT PLANNING AND RESEARCH

Comparative Summary of Activity
(Dollars in Thousands)

	FY 1992 Enacted a/	FY 1993 Enacted	FY 1994 Request
Budget Authority:			
By source of funding			
General Fund	$21,000	$29,000	$45,875
Trust Fund	83,115	56,000	39,125
Total	$104,115	$85,000	$85,000
By program			
Metropolitan Planning Program	$43,688	$38,250	c/$38,250
Rural Transit Assistance Program	4,250	4,250	4,250
State Planning and Research Program	8,961	7,750	7,750
Transit Cooperative Research	8,961	7,750	7,750
National Transit Institute	2,994	3,000	3,000
National Planning and Research Program	35,261b/	24,000	24,000
Total Programs	$104,115	$85,000	$85,000

Fiscal Year 1994 is the third year of the combined Transit Planning and Research (TPR) Program enacted by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The program will total $85 million in FY 1994.

Under FTA's enabling legislation, three percent of total FTA funding, excluding Washington Metro, is to be set aside for the TPR program. Given the emphasis that this budget places on capital

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a/ In FY 1992, funds made available for activities under TPR were appropriated from various other accounts. In order to provide proper comparison, funding from all sources are included in this column.

b/ Includes $750 thousand from RTAP availability used for National Program implementation and administration.

c/ An additional $21 million is included under Formula Grants.

infrastructure, FTA is recommending that a slightly smaller percentage of FTA funding, about 2.4 percent, be made available for the TPR program. Funding appropriated under the Transit Planning and Research program is to be allocated as follows:

- 45 percent for Metropolitan Planning under section 8(n),
- 5 percent for the Rural Transit Assistance Program under section 18(h),
- 10 percent for State Planning and Research under section 26(a)(2) less $750 thousand for National Transit Institute,
- 10 percent for the Transit Cooperative Research Program under section 26(a)(1) less $750 thousand for the National Transit Institute, and
- 30 percent for the National Planning and Research Program under section 26(b) less $1.5 million for the National Transit Institute.

In addition, $21.176 million for Metropolitan Planning is included under the Formula Grants Program.

Metropolitan Planning Organizations are the foundation of transit and highway planning. The quality and cost effectiveness of transit and highway projects are directly dependent upon the planning process for it is in this process that projects are evaluated and selected for funding. In recognition of the importance of the MPO process, the FTA is recommending that the FY 1993 appropriation of $38.25 million be supplemented by $21.176 million to be taken down within the Formula Grants account. This will provide a total funding level of $59.426 million to cover the new planning requirements of ISTEA. Also, the higher funding level is needed so that the MPOs will be better able to properly evaluate the additional projects that must be programmed within the increased infrastructure funding levels proposed for both the highway and transit programs. As with the highway programs, available planning funds should rise with the mainline programs if we are to have an adequately funded local process for evaluating and selecting projects.

Funding levels proposed for the other five TPR activities are consistent with the levels enacted for FY 1993. The requests for the six activities of TPR are discussed in more detail below:

METROPOLITAN PLANNING PROGRAM

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority	$43,688	$38,250	$38,250

A total of $38.25 million under the TPR program together with $21.176 million under Formula Grants is requested for the Metropolitan Planning. This level reflects the essential role and responsibility of planning agencies in providing appropriate planning to respond to the needs of their citizens. As mentioned above, we are recommending a higher funding level for this activity in recognition of the need for additional planning to support the higher funding levels proposed for highway and transit funding in FY 1994.

Eighty percent of the funds are allocated to the States on the basis of the respective States' total urbanized area population, while twenty percent is allocated on the basis of the population in urbanized areas exceeding one million. All of these funds must be made available by the States to MPOs. The precise mechanism for allocating the State apportionments to the respective urbanized area MPO's is determined by each State in cooperation with local officials.

These funds support the continuing, cooperative and comprehensive (3-C) metropolitan planning and programming process which FTA administers in cooperation with the Federal Highway Administration (FHWA). FHWA's funding is contained in its Planning (PL) and Highway Planning and Research (HPR) programs.

The transportation planning process is carried out by approximately 380 MPO's (this includes thirty-three new ones resulting from the 1990 Census) under the planning provisions of the Federal Transit and Federal Highway legislation. It has assumed particular importance in view of the great inter-modal flexibility built into both the Federal transit and highway programs, and guarantees the maximum pay-off from all Federal transportation assistance.

Products required of the 3-C process include a multi-modal long-range transportation plan and a transportation improvement program based upon it. The Transportation Improvement Program is a compilation of specific projects by year which are derived from the metropolitan areas' long-range transportation plans. In larger cities over 200,000 population and in non-attainment areas, a congestion management system is required as well. These are updated regularly, using information generated by a variety of studies and analyses. FTA-funded planning processes encompass studies of land-use, economic and demographic trends, transportation demand, system performance, transit finance, transportation air quality and energy impacts, the mobility needs of disabled persons, transit modernization and rehabilitation needs, and the cost-effectiveness of potential new services and facilities.

The local planning program is also the mechanism which FTA uses to insinuate national policy objectives such as energy conservation, air quality improvement, and accessibility for elderly and disabled persons into local planning and decision-making.

RURAL TRANSIT ASSISTANCE PROGRAM

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority	$5,000	$4,250	$4,250

A total of $4.2 million of the requested TPR funding is to be allocated to the Rural Transit Assistance Program (RTAP). This amount will be entirely apportioned to the States. The apportionment formula is based on each State's rural population as compared to the national rural population.

As in the past, States will continue to use this funding for research, technical assistance, training, and related support services in non-urbanized areas. Examples of the use of state RTAP dollars are for scholarships to workshops, peer-to-peer networking, newsletters, and research in the areas such as routing and scheduling. The national portion of the program is included in Regional Mobility activity of the the National Planning and Research Program which is discussed below.

STATE PLANNING AND RESEARCH PROGRAM

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority	$8,961	$7,750	$7,750

A total of $7.75 million of the requested TPR funding is to be made available for a State Planning and Research Program. The program is allocated to the States using a statutory formula based on urbanized area population. All activities permitted under sections 6, 8, 10, 11, and 20 of the Federal Transit Act are eligible for section 26(a)(2) funding, at the programming discretion of the respective States. Eligible activities include planning, technical assistance, independent research, cooperative research with other states, managerial training and university research.

State TPR funding is essential to helping the States meet the many new state-wide planning requirements established by ISTEA. States are now required to establish long-range transportation plans, project specific transportation improvement plans, and six transportation management and monitoring systems. These plans must include and build upon similar plans developed by the MPOs.

A State's section 26(a)(2) funds can also be used to supplement the section 8 metropolitan transportation planning funds it allocates to the Metropolitan Planning Organizations, as well as to cover the cost of State administration of that program. Both uses are at the programming discretion of the respective States.

TRANSIT COOPERATIVE RESEARCH PROGRAM

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority	$8,961	$7,750	$7,750

A total of $7.75 million of the requested TPR funding is to be made available for the Transit Cooperative Research Program (TCRP).

The TCRP allows the industry, through an independent governing board, called the TCRP Oversight and Project Selection (TOPS) Committee, to have an opportunity to develop a research agenda responsive to the needs of the transit industry. The TCRP fosters greater cooperation among transportation providers and suppliers, State and local agencies and other key segments of the industry in conducting research.

The first two annual agendas of research projects have been identified, and these projects are being implemented. These include assessment of innovative fare technology and policy, fitness-for-duty testing, synthesis of information on safe operating procedures for alternative fuel vehicles and development of the TCRP Strategic plan. The TOPS committee is currently soliciting new research topics for the third-year (1994) research agenda.

NATIONAL TRANSIT INSTITUTE

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority	$2,994	$3,000	$3,000

The ISTEA established the National Transit Institute (NTI) at Rutgers University to support the training and development needs of the transit industry with dedicated funds of $3 million per year for six years beginning in FY 1992. The NTI, modeled after the National Highway Institute (NHI), was designed to train and educate transit employees in the public and private sector and at the Federal, state and local levels.

The NTI is tasked to develop and conduct training to: (1) meet Federal Program Requirements that relate directly with industry compliance to Federal standards, regulations, and policy initiatives, and (2) respond to industry-defined needs. In addition, the NTI will establish a clearinghouse and referral service in support of the industry's training and education needs.

In the first year of funding, the NTI established an advisory committee of transit industry experts, developed an overall management plan, hired a director for the program and technical and professional staff, published the first newsletter and developed an inventory of existing training.

Eight topic areas were defined within the Federal Program Responsibility Training. They include:

Implementation of ISTEA
Systems Planning/Intermodalism
Disadvantaged Business Enterprise Staff Training
Project Planning
Financial Planning
Environmental
Third Party Contract Management
ADA Requirements

Specific plans for the coming year are described in the following:

Federal Program Responsibility Training: Courses identified in FY 1993, will be scheduled. Joint efforts with NHI will continue and NTI will develop new courses as new needs surface due to changes in legislation or regulations.

Industry-Defined Training: The Technical Advisory Committee will assist in determining a list of categories and training priorities. A working plan will be implemented and tentative course time/price schedule developed to determine industry interest. Courses that were developed in FY 1993, will be scheduled and presented.

National Clearinghouse and Referral Service: By the end of FY 1994, the mechanisms for the National Clearinghouse and the Referral Service will be in place and the transit industry notified on how to access both services. The actual materials and information will continue to change and be collected throughout the life of the NTI.

NATIONAL PLANNING AND RESEARCH PROGRAM

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority	$35,261	$24,000	$24,000

A total of $24 million is requested for the National component of the Transit Planning and Research program. This is the same level as was appropriated for FY 1993. A continuing level of funding for research and development is necessary if we are to identify and optimize the use of technology to improve the efficiency and effectiveness of transit in our nation. Funding in the National TPR program will be used to identify and apply innovative technologies to the transit industry.

During the 1980's, our nation's industrial base for manufacturing buses, rail cars, maintenance equipment and other transit-related items declined rapidly. This meant significant reductions in American jobs, skills, and ability for transit manufacturers to compete in a global market. The National TPR program can help arrest this trend by developing and demonstrating more advanced, cost-efficient equipment and methods.

Further, as military spending declines, a substantial opportunity exists for the transit industry to adopt military technology that can solve transit problems and lower its capital costs. For example, a military aircraft manufacturer is already working with Los Angeles to develop a light weight bus using space-age materials.

To ensure that program activities are relevant to the needs of the industry, program emphasis areas have been defined through a consultative process with the industry at large. Planning and Research Priorities Workshops are held on a regular basis to solicit inputs from the industry. A six-year Plan of activities has been developed based on the consultative process. FY 1994 represents the third year of program implementation. The vast majority (two-thirds to three-fourths) of projects undertaken in FY 1992 and FY 1993 were recommended specifically by these working groups. The FY 1994 program reflects input from the last workshop held on March 15-16, 1993.

In addition, a Federal Transit Technology Advisory Committee, required by ISTEA, provides essential transit industry direction. This committee is composed of transit suppliers, manufacturers, operators, consultants, and members of academic institutions. This Committee meets periodically to recommend technology priorities, emphasis areas, and cost sharing possibilities.

Six priority areas for technology development were recommended: those which reduce maintenance and operations costs; increase ridership, enhance safety and security and improve access; support the Clean Air Act and Americans with Disabilities Act; reduce vehicle weight and increase vehicle efficiency; transfer technology from other industries and improve information dissemination; and control of capital costs. The FY 1994 program contains projects in these priority areas.

In FY 1994, FTA expects to obligate $5.5 million in contracts for advisory and assistance services in support of FTA programs.

The National Planning and Research Program is divided into eleven specific programs. Projects in each program represent a mix of research, demonstrations and studies or development and application of new technologies, as well as information dissemination and evaluation. The eleven programs areas are as follows:

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority:	$35,261	$24,000	$24,000
By program area-			
Advanced Public Transportation Systems Program	$ 5,398	$ 3,165	$3,250
Clean Air Program	13,025	1,750	2,000
Finance Program	1,000	1,000	800
Human Resources and Productivity Program	1,800	1,800	1,500
Information Program	2,000	3,835	3,800
Planning and Project Development Program	2,500	2,500	2,500
Policy Analysis and Evaluation	1,170	1,400	1,000
Regional Mobility Program	2,272	2,450	2,650
Safety and Security Program	1,000	1,000	900
Technology Development Program	3,100	3,100	3,200
Transit Accessibility Program	1,996	2,000	2,400

The following table reflects actual obligations for the national program in FY 1992 and estimated obligations in FY 1993. FY 1992 obligations include $25.9 million in carryover and recoveries. FY 1993 estimated obligations include $13.5 million in carryover and recoveries.

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
Obligations:	$52,246	$37,520	$24,000
By program area-			
Advanced Public Transportation Systems Program	$ 5,398	3,265	3,250
Clean Air Program	10,279	5,825	2,000
Finance Program	1,296	525	800
Human Resources and Productivity Program	2,541	2,799	1,500
Information Program	3,325	5,646	3,800
Planning and Project Development Program	7,315	4,642	2,500
Policy Analysis and Evaluation	1,170	1,551	1,000
Regional Mobility Program	4,832	5,830	2,650
Safety and Security Program	2,104	1,020	900
Technology Development Program	11,494	4,067	3,200
Transit Accessibility Program	2,493	2,350	2,400

ADVANCED PUBLIC TRANSPORTATION SYSTEMS PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$5,398	$3,165	$3,250
Obligations:	$5,398	$3,265	$3,250

Background

Advanced Public Transportation Systems (APTS) applies innovative electronic technologies to public transportation to reduce operating costs, improve customer service, and increase urban mobility. These technologies include advanced communications, passenger information, fare media, and vehicle location. The APTS program is part of the Department of Transportation's Intelligent Vehicle-Highway System (IVHS) Program, and the APTS staff. Major public benefits are expected as these technologies attract travelers to transit and ridesharing modes and improved transit operations thereby reducing traffic congestion, air pollution, and energy consumption.

Objectives and Approach

The APTS Program is divided into three major components: Smart Traveler, Smart Vehicle, and Smart Intermodal Systems. Functionally, each component consists of four categories of effort.

These include research, user requirements and technical assistance, operational tests, and project evaluation cross-cutting studies. Individual projects support each area so program goals are attained.

Accomplishments to Date

Developed a Vehicle Area Network Standard to integrate all bus electronic systems, including communications, electronic fare collection, passenger information, passenger counting, and vehicle location through a single wiring harness. Current systems are wired separately, adding weight, maintenance complexity, and substantial installation costs. The standard had been adopted by SAE (Society of Automotive Engineers) and is now being internationally accepted.

Conducted an evaluation of the technical performance and effectiveness of the Denver Regional Transportation District's new District-wide Communication Systems, which combines communications and Smart Vehicle technologies. The evaluation is being performed by Sandia National Laboratories.

Assisted Dallas Area Rapid Transit by evaluating a Global Positioning System (GPS) receiver and recommending changes. These changes resulted in a system offering greater location accuracy and reliability.

Completed two Advanced Fare Payment Media Small Business Innovative Research (SBIR) projects which investigated various forms of advanced fare payment media for transit applications. The investigations which focused on advanced care systems improve the efficiency of fare collection, and benefit the transit provider and customer alike.

Assisted Houston Metro in developing a Smart Traveler concept which is being implemented in the I-10 West and I-45 North corridors. This will divert drivers of single occupant vehicles to transit and carpools.

Developed national evaluation guidelines to provide a common evaluation format, data collection and analysis procedure.

Published the APTS State-of-the-Art and Start-of-the-Art Update '92, compendiums of advanced technology in public transit which have assisted more than 50 communities initiate APTS projects.

Planned for FY 1994

Research. Activities will include human factors, advanced communication and system component studies.

User Requirements and Technical Assistance. This project will develop user requirements to help transportation providers define technical requirements that must be addressed in preparing specifications for APTS technologies.

Operational Tests. Five operational tests are planned to test and evaluate new innovative systems. Proposed tests include the California Smart Traveler Concept, Transit Route Deviation, Rural Mobility Management, Radio Frequency Fare Media, and Multi-Use Smart Cards.

Project Evaluation/Cross Cutting Studies. These studies are an assessment of operational tests using a standardized evaluation plan. The evaluation will continue aggregation of data on system performance and permit ready comparison between test sites and technologies.

CLEAN AIR PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$13,025	$1,750	$2,000
Obligations:	$10,279	$5,825	$2,000

Background

Transportation has major impacts on the environment. Emissions from mobile sources are one of the largest contributors to urban air quality problems. One fourth of the Nation's total energy consumption, and approximately two-thirds of the petroleum used, supports U.S transportation.

The Clean Air Program (CAP) was established to support the national goals of improving air quality and reducing petroleum dependency. The national goals are derived from the Clean Air Act Amendments of 1990 that established emissions standards for urban transit buses and the Energy Policy Act of 1992 that established a goal to replace at least 10 percent of the petroleum fuel used by transportation with alternative fuels by the year 2000 and 30 percent by 2010.

Objectives and Approach

The objective of the CAP is to provide decision-makers at all levels with a better understanding of emerging technologies that generate cleaner emissions and are non-petroleum derived, and to provide technical assistance and support to the transit industry in making a successful transition to these technologies. Efforts under the CAP are closely coordinated with the Environmental Protection Agency (EPA) and the Department of Energy (DOE).

The CAP consists of three program elements: Fuel Cell/Battery Bus Program, Electric Vehicle Program, and Environment Initiative Program. The Fuel Cell/Battery Bus Program is a joint coordinated effort with DOE to develop and demonstrate a fuel cell/battery propulsion system for an urban transit bus. The Electric Vehicle Program was established under ISTEA to explore the use of new electric technologies for mass transit. This program will enhance the development of a domestic electric vehicle industry by taking advantage of expertise from the aerospace and defense sectors. The Environment Initiative Program includes the development, demonstration, and evaluation of alternative fueled buses in revenue service operations, facility design guidelines to accommodate alternative fuels, and comparative analyses of alternative fuel bus operations.

Accomplishments to Date

FTA awarded 61 grants for projects that will deploy 1,112 alternative fueled vehicles in transit service (505 of these are natural gas, 338 are methanol, 177 are ethanol, and 25 are LPG).

Completed on-site industrial hygiene surveys for three sites that use methanol buses through the National Institute for Occupational Safety and Health (NIOSH). Similar surveys are underway for natural gas buses.

Collected data on operational and cost impacts of alternative fueled and clean-Diesel buses and provided results to the National Renewable Energy Laboratory, the designated national repository of data for all types of alternative fueled vehicles.

Supported the development of six bus engines that have been certified to meet EPA's 1993 bus emissions standards. These include: the Cummins Natural Gas, Detroit Diesel Methanol, Detroit Diesel Ethanol, Cummins and Detroit Diesel engines with particulate traps, and Detroit Diesel Series 50 Diesel engines without a particulate trap.

Completed Phase I, Proof-of-Feasibility, under the Fuel Cell/ Battery Bus Program. A brassboard model of a fuel cell/battery propulsion system with a phosphoric acid fuel cell fueled by methanol successfully demonstrated its technical feasibility. Results indicated that 200 fuel cell/battery buses would have the same level of emissions as one standard diesel bus.

Initiated the ISTEA mandated Advanced Transportation Systems and Electric Vehicles (ATS/EV) Research and Development Program. Four consortia were selected:

> CALSTART will develop and evaluate advanced electric vehicle components and subsystems; analyze issues concerning infrastructure support systems; and develop advanced prototypes and specifications for EV buses.
>
> The Chesapeake Consortium will develop an advanced powertrain for electric vehicles that will be demonstrated and evaluated in 10 prototype electric vehicles.
>
> The New York State Consortium will develop and demonstrate a low floor, full sized bus with a hybrid electric propulsion system.
>
> The Advanced Lead-Acid Battery Consortium will develop, demonstrate, and evaluate rapid recharge technology for lead-acid batteries.

Initiated support for the Electric Transit Vehicle Institute (ETVI) to promote the design, production, and use of electric vehicles in transit.

Planned for FY 1994

Fuel Cell/Battery Bus. Complete Phase II. Three medium sized buses are being assembled - 2 fueled by methanol for South Coast Air Quality Management District and Georgetown University and one fueled on ethanol for PACE in Chicago. Phase II will also produce a design for a full size fuel cell bus in cooperation with TMC.

Electric Vehicles. Continue to monitor progress of four consortia selected under ISTEA mandated program. Continue to support the ETVI which will serve as the facilitator and resource center for electric vehicle development for the transit industry. A field testing laboratory for the research, design, development and demonstration, support of electric transit vehicles will be established by ETVI.

Environment Initiative. Provide technical assistance to transit agencies in their efforts to deploy alternative fueled buses. Develop a LNG manual to complement the existing CNG and methanol manuals. The Transportation Safety Institute will develop and conduct training courses based on these manuals.

Develop guidelines for the conversion and construction of new transit facilities to safely accommodate alternative fuels.

Continue with the data collection and evaluation of the performance - , reliability, and cost of alternative fueled and clean diesel buses in cooperation with the Department of Energy.

Initiate two demonstrations of clean diesel bus technology with particulate traps and/or catalytic converters for bus engine rebuilds to meet EPA requirements.

FINANCE PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$1,000	$1,000	$800
Obligations:	$1,296	$ 525	$800

Background

Mass transportation in the United States will be faced with extensive financial demands in the 1990's. It is estimated, that the replacement and rehabilitation of existing assets will cost over $49 billion over the next 10 years. Providing capital for this level of investment will be made more difficult by over $20 billion in demands for new systems, many of which were earmarked in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. In addition, ever increasing operating and maintenance costs, and effective responses to the Clean Air Act and Americans with Disabilities Act requirements will necessitate new and innovative approaches to transit finance.

ISTEA provides the national policy framework for addressing the transit finance challenges of the 1990's. It strengthens the metropolitan decision-making process, encourages use of sound financial principles, provides for flexible use of Federal highway and transit funding, promotes the use of innovative financing techniques, and advances opportunities for greater private sector involvement in transit programs.

Objectives and Approach

The Finance Program objectives are to help stabilize and diversity the funding base for transit systems; stimulate public/ private partnerships; and enhance the financial management capabilities of transit professionals. The program is designed to conduct research, training, evaluations, and demonstrations.

The Program elements include Financing Techniques, which promote use of innovative financing mechanisms that leverage Federal, State, local, and private sector assistance, supports reduction in the cost of capital through credit enhancement instruments, and encourage market based revenue strategies; Financial Management, which focuses on the on-going financial operation of transit agencies; and Public/Private Partnerships, which embraces efforts to capture the value of transit infrastructure investments through public/private cooperation.

Accomplishments to Date

Assisted transit agencies in San Francisco, Denver, St. Louis, Sacramento, Northern New Jersey, San Diego, Baltimore, Seattle, and Los Angeles which successfully implemented cross-border leases and capital leases which have generated significant dollar savings and revenue for these agencies.

Conducted a series of workshops on financing in Orlando, Los Angeles, and Washington, D.C. which raised the awareness of transit agency, metropolitan planning organization, local government, and state government officials on the opportunities and technical issues associated with creative financing techniques.

Prepared a report, entitled "Introduction to Public Finance and Public Transit", which describes, and provides information for analyzing and implementing innovative financing techniques.

Through the efforts of the National Association of Regional Councils (NARC) and the Metropolitan Transportation Commission in Oakland, developed a financial analysis model for metropolitan planning organizations (MPO). This analysis tool will assist MPO's in the implementation of the financial planning and analysis requirements of ISTEA and the Clean Air Act Amendments. In addition, transit agencies were provided with state-of-the-art information on asset management.

Conducted workshops on joint development of real estate and transit capital projects in Baltimore, Washington, Dallas, Chicago, Los Angeles, Seattle, Atlanta, and San Francisco. These workshops and completed demonstration studies have assist communities in understanding and capturing the economic value from transit system investments, which fosters more efficient land use development.

Planned For FY 1994

Financing Techniques. Studies will be conducted on the opportunities and applicability of securitization and other infrastructure banking strategies on ways to increase the efficiency of construction financing. Studies will also be conducted to assess the market for industry-wide or state-wide transit vehicle pooled financing programs. Assessments of transit pricing policies will be conducted. These efforts will provide transit financial planners with better information on ways to more effectively use scarce financial resources.

Financial Management. The Finance Plan Model will be tested, evaluated, and the database management module updated to improve operating efficiency. Reviews will be conducted of best practices in internal auditing and guidelines will be prepared addressing issues of organizational structure, policies and procedures. Guidelines on cash management will be prepared that provide the best practices with specific emphasis on revenue collection, banking, investing, and acquisitions -- cash management issues identified by transit agency financial managers. Training in transit finance will be offered to MPOs in areas with small and medium-sized transit systems, and to cities that are developing new fixed guideway systems to address the financial planning and financial capacity analysis requirements of ISTEA and the Clean Air Act. These efforts will enable transit agency financial operations officers to improve their financial management capabilities.

Public/Private Partnerships. Demonstration studies will be initiated to assess the market for increasing employer and developer participation in sharing the cost of transit infrastructrue investments. A review will be conducted of risk management practices in the transit industry and guidelines of good professional practice will be prepared, which will aid transit managers to better allocate risk involved in operations and new construction. Evaluations will be performed of joint development projects in Cedar Rapids, Iowa; Ballston, Virginia; Bethesda, Maryland; New York; Miami, Florida; and Denver, Colorado to determine the effectiveness of implemented public/private infrastructure transit investments.

HUMAN RESOURCES AND PRODUCTIVITY PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$1,800	$1,800	$1,500
Obligations:	$2,541	$2,799	$1,500

Background

The next ten years will place greater demands and requirements on the transit workforce as fewer employees enter the workplace, and employer competition increases for unskilled labor. In addition, changing technology, like the need for new skills, training, retraining and pressure to keep good employees in transit will focus efforts in support of the Industry's human resource needs.

The adverse impact of introducing new equipment and technology into service without proper training is often felt long after implementation. Plans for introducing technological change must include provisions for human resources education and training as well as support for operations and maintenance.

Partnership models must be developed to promote career opportunities for students, beginning at the high school and continuing through college and university advanced degree programs.

Objectives and Approach

The objectives of the Human Resources Management Program are to improve the performance and productivity of the transit labor force. Recruiting and selection, training and education, business development opportunities for minorities and women, and increased employee involvement on the job, will all play important roles in achieving the overall transit goals of improved performance, increased mobility and cost effective operations.

Accomplishments to Date

Produce a video and resource guide depicting innovative industry practices in operations, maintenance, and service delivery.

Published report documenting the role of the nation's community colleges in bridging the gap between high schools and colleges and the transit industry.

Oregon State University through a University Research Grant successfully developed an automated Universal Securement/Restraint System that will accommodate most wheeled mobility aids currently used in public transit.

The University of California at Los Angeles (UCLA), completed a project used as the basis to require the cashing-out of employer paid parking in the State of California.

Managerial Training Grants awarded to state transit associations have assisted in creating a technical assistance and training role for the associations at the state and regional level.

Conducted a training seminar on Title VI of the Civil Rights Act including sessions on service delivery, equal employment opportunity, DBE/WBE and ADA, over 150 persons participated.

The Washington Urban League in cooperation with the FTA conducted a seminar series targeted to benefit disadvantaged business, community organizations and local public officials. More than 300 persons participated.

The Small Business Development Center at Howard University sponsored a series of transit industry segments for their Small Business Magazine TV Series. The segments highlighted business opportunities in transit at the Federal, state and local level.

The Human Resources Management Program has dedicated itself to the improvement of the transit workforce at all levels. In addition to the examples above, this has meant and will continue to mean being an available and active resource to the transit industry.

Planned for FY 1994

Training and Development. Concentrate on supporting improved methods and techniques in training and development by focusing on computer assisted and self paced learning. Selected groups such as Native Americans and inner city youth in New Jersey and Los Angeles will be targeted for for skill development and upgrade. Projects will also be designed to assist grant recipients in implementing target programs for women, minorities and the disabled community.

Labor/Management Cooperation. Continue efforts to promote cooperation between labor and management. Projects will be developed in cooperation with the major transit unions.

Managerial Training. Eight to ten Managerial Training Grants will be awarded on a competitive basis to transit agencies and state transit associations demonstrating a commitment to conduct responsive, cost effective training based on well defined training needs.

University Research. Research grants will be awarded to five to ten selected colleges and universities on a competitive basis.

Assessment and Evaluation. Assess transit industry human resource practices in hiring and selection and compare with practices in private industry.

DBE/WBE. Efforts will focus on assisting minority and women entrepreneurs to participate in the many contracting opportunities available in FTA grant programs. Special efforts will be made to assist transit agencies in meeting their DBE/WBE procurement goals.

The objectives of the Human Resource Management Program continue to revolve around improving the performance and productivity of the transit labor force. To these ends and to enhance the role of the transit industry, our policies must promote the diffusion and absorption of new technology, while insisting on appropriate training to help the changing workforce to adapt to ever-changing environments.

INFORMATION PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$2,000	$3,835	$3,800
Obligations:	$3,325	$5,646	$3,800

Background

The transit industry requires timely information on the latest technical innovations and techniques in order to effectively provide service to the public. An important element in the delivery of this information is a strong role by the FTA. The FTA Information Program will provide leadership to the transit industry in the delivery and retrieval of information and improvements to the dissemination process.

Objectives and Approach

The Information Program is designed to improve communication among transit operators, suppliers, consultants, and the FTA on work in progress as well as on specific products that are available to improve mass transit systems and services.

The primary objectives of the Information Program are to determine the information needs of decision makers in the private and public transportation sectors and to establish efficient and effective outreach products and procedures to disseminate information and transfer technology.

There are three elements of the Information Program. They include Data/Information Generation which develops new information essential to policy development and program formulation; Data Management which is concerned with techniques and practices supporting improved information collection and dissemination; and Dissemination which addresses the market for information sharing and the transfer of technology.

Accomplishments to Date

Collected, analyzed, and disseminated section 15 data to provide up-to-date information on transit operations and performance. The section 15 reporting system has been streamlined so that grantees report more uniformly using one format and profiles of performance have been added so that transit agencies can target operational improvements.

Established at George Mason University a resource information center to facilitate information technology-based approaches to transit issues. The Center has developed state-of-the-art information dissemination and retrieval techniques that will enable transit managers and public officials to more efficiently learn and absorb the latest approaches and techniques to improving their operations.

Provided support to the Transportation Research Board to conduct transit-related research activities. This has included support to the Transportation Research Information System (TRIS) which has expanded its database to 658 subscribers, of which 499 are domestic and 159 are foreign.

Responded to over 1000 telephone requests for specific technical information through the Public Private Transportation Network (PPTN) which is a peer-to-peer information exchange. The PPTN also provided for 170 site visits of experts to transit operators and State and local governments, and enabled industry representatives to speak at conferences and workshops.

Produced and disseminated technical briefs on the national research programs, including APTS, Clean Air, Safety and Security, Bus Testing, Regional Mobility, Finance, Human Resources, and Technology Development. These briefs provided useful, up-to-date technical information on improvements and innovations involving the transit industry.

Produced Private Sector Briefs covering various areas of public/private sector cooperation including entrepreneurial services, transit marketing, transportation demand management, labor, business community initiatives, finance, and reverse commuting. These Briefs have provided useful information on existing approaches by public and private bodies towards improving transit operations and ridership involving public/private cooperation.

Planned for FY 1994

Data/Information Generation. The 1994 section 308 transit needs report to Congress will be prepared which will outline current conditions and assess future needs.

Data Management. The section 15 annual report on the performance of transit operations will be prepared, and software changes made to improve the efficiency of data processing and to improve the format and content of information in the report.

Dissemination. FTA will continue to disseminate reports, technical briefs and other materials to organizations involved in the planning, design, analysis, and operation of transportation services so that the transit industry will have the benefit of the latest information that can improve efficiency and performance.

Information dissemination and coordination through TRB, APTA, and the George Mason University's Resource Information System will be promoted and improvements made so that better information coordination can occur among the various players in the transit industry.

Support to the PPTN will continue. It is anticipated that PPTN will respond to over 1200 requests for technical assistance and will facilitate over 200 site visits to local transit authorities through its peer-to-peer and expert exchange program.

PLANNING AND PROJECT DEVELOPMENT PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$2,500	$2,500	$2,500
Obligations:	$7,315	$4,642	$2,500

Background

Public transit is a major investment in terms of capital costs, labor intensity, and peak period capacity requirements. Since 1965, over $47 billion in Federal Capital Grants has been invested in the U.S. The need for capital investments by the transit industry in vehicles, fixed guideways, stations and other facilities is estimated to be $75 billion over the next 10 years.

It has been over ten years since FTA has acted to advance the state-of-the-art in operations planning. The transit industry has seen the emergence of new information systems and advanced technologies that could support the planning for more efficient and effective services and also offer opportunities to address many of the issues in capital investment planning and engineering. There are numerous possibilities for improvements in the planning area such as the application of microcomputer software as analysis tools, the development of new theories for the implementation of contemporary demand models, and the application of major data bases such as geographic information systems and scheduling systems.

Improved planning and analysis will help insure that scarce Federal funds are used most effectively in capital and operational investments.

Objectives and Approach

The primary objective of the Planning and Project Development Program is to insure that government investment in transit services, equipment, and facilities yield maximum return through direct assistance to local governments and transit agencies and the development of effective and efficient planning methods and procedures for their use.

The Program is divided into several elements. Planning Program Support provides direct assistance to the local agencies which develop travel demand, cost and land use models to support the long range regional planning, corridor studies and clean air analyses dictated by ISTEA and the Clean Air Act. Capital Planning ensures that new procedures are developed to enable proposed capital transit projects to be designed and constructed in a cost effective manner. Operational Planning ensures that transit services are effectively designed to maximize passenger usage and to minimize the cost of operations. Fare Analysis and Collection studies and evaluates innovative fare strategies and revenue collection techniques with an aim towards maximizing fare revenues without losing significant ridership. Multimodal Planning develops evaluation criteria and studies organizational arrangements that will facilitate multimodal decision-making for transportation alternatives including transit and highways. Procurement Methods and Engineering Management address management improvements associated with coordination of contracting methods, project financing, project management, design, civil construction, vehicle production and subsystem installation.

Accomplishments to Date

Provided technical support to numerous planning agencies and transit authorities for conducting various planning studies, alternatives analyses, and environmental impact studies aimed at developing more cost effective transit systems across the country.

Initiated the Turnkey Demonstration Program which will evaluate the effectiveness of the turnkey method of contracting for major transit capital design and construction projects.

Provided guidance and technical support to transit agencies to improve their revenue management in areas such as fare restructuring, employer based programs, leasing and advertising revenues. The support was provided in various areas across the country including New York, Boston, Philadelphia, Atlanta, Chicago, Cleveland, Kansas City, Los Angeles, Sacramento, and Seattle.

Prepared a report entitled "Light Rail Transit Capital Cost Study" which documents the actual construction and acquisition costs for the most recently constructed light rail transit systems in the United States. This report provided a base of information to help planners of future light rail systems make better cost estimates.

Prepared a report entitled "Characteristics of Urban Transportation Systems" which updates information for estimating the performance characteristics of urban transportation modes including light rail, heavy rail, bus, auto, automated guideway and pedestrian assistance systems. With this report, transit systems will be able to gauge their performance and compare it with other transit systems of similar characteristics.

Completed research on ways to enhance the forecasting of activity center travel using downtown Norfolk, Virginia as a study area. Transit systems can use this forecasting tool to estimate travel demand to activity centers and plan their operations accordingly.

Planned For FY 1994

Planning Program Support. Support will be provided to help local planning bodies and transit authorities better understand the new planning and project development requirements of ISTEA. Procedures will be developed, tested and documented on how planning agencies can use geographic information systems to enhance transit planning.

A "Technical Resource Center" will be established to assist planners in using the latest travel demand modeling techniques. Travel demand modeling will be advanced with new approaches. These procedures will help transit agencies use travel demand models that are more descriptive of their day-to-day operations.

Capital Planning. Efforts will continue to improve procedures and techniques for use by transit planners for cost estimation, site planning, and transit access modeling. A Transit Capital Price index modelled after the Highway Construction Price Index will be developed. This index will provide more descriptive cost estimation factors than is currently available for transit construction.

Operation Planning. Route-level demand models will be updated to be used with personal computers and to make use of geographic information systems for data manipulation by planning agencies. The transit operator planning, diagnostic, and optimization model will be updated to incorporate a wider variety of labor constraints and operating periods. A course in transit operations planning will be presented to transit agency personnel across the country. Transit agencies will benefit significantly from an update of these planning tools for use in contemporary personal computers and to include emerging labor and operational issues.

Fare Analysis and Collection. An evaluation will be conducted of the various methods currently in use for the distribution of transit passes. A demonstration will be conducted of strategies and analytical techniques used to allocate fares, revenues, and costs for intermodal passes. An evaluation will be made of the impact of the employer transit pass tax incentive program. Transit agencies and major employers need this documentation to better plan and implement their various services and to predict the impacts on carpools and transit ridership.

Multimodal Planning. Criteria will be developed to evaluate multimodal alternatives affecting both highways and transit. An organizational study will be made to determine the best way to conduct multimodal planning. The demand, supply, performance and cost characteristics of intermodal terminals will be compiled as a data base for use by transportation planners. A summary of best citizen participation practices for the planning process mandated by ISTEA will be developed. All this documentation will enable planners to better integrate joint transit/highway facilities into the transportation solution.

Procurement Methods and Engineering Management. Support will be provided for the FTA Turnkey Demonstration Program which will include on-site monitoring and evaluations of on-going turnkey construction projects. Reviews will also be conducted of the state-of-the-practice in preliminary engineering of major capital investments.

POLICY ANALYSIS AND EVALUATION	FY 1992	FY 1993	FY 1994
Budget Authority:	$1,170	$1,400	$1,000
Obligations:	$1,170	$1,551	$1,000

Background

The purpose of the Policy Analysis and Evaluation Program is to provide a continuing process for development of systematic information in support of FTA decisionmaking so that it is based on knowledge of the likely impacts of FTA decisions, the status of efforts to carry them out, and measurement of their results.

Objectives and Approach

Projects in this area include evaluations of the trends, conditions and performance of the transit industry; establishing objectives for FTA's programs; developing and evaluating legislative and policy initiatives; ensuring that National and Departmental goals are reflected in agency initiatives; and evaluating the effectiveness of FTA's policies, programs, and projects.

Accomplishments to Date

For the first time, in January 1993, FTA and FHWA jointly submitted to Congress an intermodal highway/transit conditions, performance, and needs report. The report included estimates of transit needs based on the costs to maintain and improve performance.

An updated analysis of the current conditions of the existing rail systems was completed. This study also provides an estimate of the remaining cost to restore these systems to a good state of repair. These results will be used in the 1994 section 308 Report on Transit Conditions and Needs.

An analysis of the current conditions of the Nation's bus maintenance facilities was completed. This report also includes data on the investments planned for these facilities over the next five years. The report will be used as a basis for the bus maintenance facilities needs estimated in the 1994 section 308 Report.

The University of California at Berkeley prepared a report analyzing the recent use of joint development by transit operators. The report inventories all joint development projects and makes an assessment of the conditions necessary for successful integration of real estate development and transit projects.

Regulatory impact analyses were developed on legislation such as the Clean Air Act Amendments and the Americans with Disabilities Act.

Support was provided for policy initiatives such as securitization and creative financing alternatives.

Policy proposals were developed for changes in the tax treatment of employer-provided transit passes, culminating in changes included in the National Energy Policy Act of 1992.

Planned for FY 1994

Analysis in support of the biennial intermodal reports to Congress on transit and highway condition, performance, and needs will be conducted. This will include collection of improved data on transit facility and equipment conditions and investment plans as well as continued analysis of the economic performance of transit. Assessment of travel behavior, transit's market, and transit performance using section 15, 1990 Census, Nationwide Personal Transportation Study, and other data will also be conducted as part of the assessment of transit performance.

Development of information in support of the annual reports to Congress on allocation of major capital investment funding required by section 3(j) of the Federal Transit Act.

Efforts will be continued to develop methods to assess intermodal urban transportation performance. It is intended that these methods would result in improved measurement of transit performance and highway performance in urbanized areas and would be coordinated with the Highway Performance Monitoring System (HPMS).

Studies will be conducted on the impacts of existing major transit investments. FY 1994 funds will be used to continue studies to assess the longer term impacts of the systems in San Francisco and Atlanta. These systems were assessed soon after they opened in the late 1970's. The studies will assess what has happened in terms of the impacts of the investments since that time, particularly in terms of the transportation system and land use and urban development.

In order to accommodate the changes made in the section 3(i) criteria for New Starts by ISTEA, and other changes since FTA's Major Investments Policy was issued in 1984, studies will be conducted to improve the criteria used for evaluating proposed major new investments.

Analyses of the tax policy impacts on transit use and recommendations for further changes in the tax treatment of employer-provided transportation benefits will be conducted. This will focus on the recent change which increased the value of an employer-provided transit pass which is tax free from $21 per month to $60 per month.

This area will also include continued studies to evaluate FTA's programs and policies, with recommendations for improvements. Specific areas for investigation will be chosen based on a comprehensive review of agency policies.

FTA will continue cooperative efforts with FHWA on ISTEA authorized operational tests of Congestion Pricing.

This area will include several projects in support of implementation of the strengthening of transportation planning and flexible funding included in ISTEA. This will include assessments of the success of these provisions as well as outreach efforts designed to assure that transit operators and local transportation planners are fully aware of these opportunities.

REGIONAL MOBILITY PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$2,272	$2,450	$2,650
Obligations:	$4,832	$5,830	$2,650

Background

The Regional Mobility Program was created to be a catalyst for local action to address regional mobility problems using relatively low cost, innovative management strategies. Mobility problems come in various forms. For example, too much traffic demand for roadway systems can cause congestion, delays, accidents, suppression of latent travel demand, lost business opportunities, and increased business and personal transportation costs. Mobility problems also include the difficulties of persons without cars to get to jobs, stores and medical services that are located without access to public transit services.

Objectives and Approach

The Regional Mobility Program focuses on a variety of objectives. These include assisting local communities to reduce dependence on, and encourage alternatives to, single occupant auto travel in metropolitan areas; promoting multi-modal and intermodal decision-making aimed toward reducing traffic congestion and increasing mobility; encouraging a greater variety of transportation choices; improving the mobility of those without easy access to transportation, including the rural poor, persons with disabilities, and elderly persons; and encouraging private sector participation in local transportation programs to better serve customer needs, particularly in the innercity and suburban markets not being served well by conventional transit systems.

The Program elements include Transportation Demand Management which focuses on actions to reduce single occupancy trips; Innovative Transportation Services which focuses on new marketing and service strategies; Entrepreneurial Services which encourages community, neighborhood, minority and small business groups to establish private transit services in niche markets; Rural and Specialized Transportation which addresses the personal mobility problems of people who are isolated and/or lack opportunity to access transportation; and Private Sector Initiatives which encourage business community involvement and public/private partnerships in the whole range of mobility strategies.

Accomplishments to Date

Provided technical assistance to over 60 communities across the country to help implement specific measures to relieve traffic congestion and increase transit usage.

Established the National Center for Regional Mobility at George Mason University which publishes a quarterly newsletter and developed an innovative, computer-based system to facilitate the flow of information to the transit industry.

Developed a microcomputer program to enable employers, developers, and local governments to collect and analyze data on transportation demand management (TDM) programs. Developed a model technique for use by transit planners for analyzing the interactions of TDM strategies and land use scenarios. Also developed an implementation guidelines manual for use by local transportation officials.

Initiated multi-operator negotiable transit voucher programs that encourage employees to ride transit to work in the New York City, Philadelphia, Los Angeles, and Washington D.C. metropolitan areas. Thousands of transit vouchers are now sold monthly in each area.

Implemented a market-based fare program for the Chicago Transit Authority which resulted in increased revenue without the usual loss of ridership.

Provided training and technical assistance which have enhanced the expertise and management of rural transit operators; developed a video-based training package and a promotional kit which has been distributed to state Departments of Transportation; and developed cost effective rural transportation innovations.

Provided start-up assistance to over 100 organizations, including public housing councils, business community groups, transportation management associations, civic groups, and a variety of private bus and taxi operators to initiate new transportation services. As a result, privately operated transportation services have started in over 20 U.S. cities.

Established twelve transportation management associations which have facilitated public and private sector involvement in development of effective TDM actions.

Planned for FY 1994

Transportation Demand Management and Innovative Transportation Services. The FTA/FHWA Joint Operational Action Program will be continued. This program assists public agencies in implementing various innovative transportation demand management techniques that involve intermodal cooperation. Evaluations will be conducted of various transportation demand management strategies and innovative service concepts and their effectiveness in increasing transit use and reducing single occupant auto travel. Congestion pricing implementation plans will be developed in San Francisco, Houston, and the Washington, D.C. metropolitan area. The plans will focus on the effect that variable pricing will have on reducing traffic congestion, improving traffic flow, and enhancing transit and multi-occupancy vehicle use. Continued support will be provided to the Consortium for Regional Mobility to prepare newsletters, conduct outreach, and conduct technical workshops to promote regional mobility. Studies and evaluations will be conducted of various telecommuting strategies and operations.

Rural and Specialized Transportation. Continued assistance will be provided for the Rural Technical Assistance Program Resource Center, training material development, the peer-to-peer matching program, technical assistance, research initiatives, the Rural Research Clearinghouse and the toll-free telephone hotline. Selected joint project initiatives will be conducted with various Department of Health and Human Services operating administrations. An assessment of intercity rural connector programs will be conducted to determine the effectiveness of states in utilizing the section 18 set-aside funds.

Private Sector Initiatives. FTA's Private Sector Initiatives Program continues to increase participation by private operators, the business community and neighborhood and civic groups. Transit agencies now weigh the benefits of competitive participation by private operators in local transit operations. The Entrepreneurial Services Program (ESP) has made it possible for neighborhood and civic groups, as well as the business community, to be engaged in developing special services that meet the needs of neighborhood residents and support economic development. Projects have been started in over 20 states. The new Business Transportation Council is showing the business community its stake in improving urban mobility and in participating in local decision-making, particularly with respect to the provisions of the CAA and the ISTEA of 1991 which affect business.

SAFETY AND SECURITY PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$1,000	$1,000	$900
Obligations:	$2,104	$1,020	$900

Background

The Safety and Security Program is designed to assist the transit industry as well as state and local authorities in providing the highest practical level of safety and security for the passengers and employees of the Nation's public transportation systems. A safer transit environment projects a better image to the public, resulting in increased patronage and transit income; reduced costs; improved schedule performance; and enhanced working conditions. A healthy transit industry requires the elimination or control of unintentional hazards to the passengers, employees and public affected by transit operations and protection against intentional personal injury or property loss. The goals of FTA's Safety and Security program are (a) to prevent and reduce accidents and incidents, and (b) to minimize and control the effects of accidents and incidents that do occur.

Objectives and Approach

Recognizing that safety and security are a local responsibility, the program objectives are realized through technical assistance which supports the fundamental activities associated with operating a safety program. These activities include:

Training of transit professionals through the Transportation Safety Institute is an ongoing effort to spread safety and security knowledge to the working levels within the transit industry; performance indicators utilizing data on transit safety problems and program effectiveness; safety oversight and security enforcement through the development of technical projects, regulatory guidelines and; development of drug and alcohol programs to detect and deter substance abuse by transit workers.

FTA achieves these objectives through technical assistance which benefits both the riding public and the mass transit industry.

Accomplishments to Date

The Transportation Safety Institute (TSI), supported by FTA, has provided safety training covering a full range of bus, rail, and safety courses and seminars. To date, some 25,000 persons have received training through the TSI Program. Trainees attend courses at TSI in Oklahoma City, others receive training at their own local systems from instructors who had been prepared thru TSI's Train-the-Trainer programs. As a result of these training programs, improvements have been made in the areas of accident prevention, accident reduction, and a more secure environment for transit patrons. While the ultimate benefactor of safe and secure transit system is the transit patron, the taxpayer also receives benefit from the fact that a safer system is a more financially stable system.

In June 1992, FTA published an Advance Notice of Proposed Rulemaking (ANPRM), requiring States to oversee the safety of rail fixed guideway systems within those States. A Notice of Proposed Rulemaking (NPRM) will be published in the Spring of 1993; the final rule is explained by end of year.

Convened a workshop to explore new security concepts in managing social problems which impact the transit systems and its passengers, such as: gangs and other sources of ethnic and cultural conflict; homelessness; and how order and cleanliness contribute to a safe and civil transit environment.

Completed an independent safety review of the New York Metropolitan Transportation Authority (MTA), including the New York City Transit Authority, and the Long Island and Metro-North commuter railroads. The MTA agencies are currently developing action plans to address identified safety concerns.

Notices of Proposed Rulemaking on drug and alcohol testing in the mass transit industry were published in the Federal Register on December 15, 1992. It is anticipated that final rules will be published by the end of calendar year 1993. The Omnibus Transportation Employee Testing Act of 1991 mandates the Department of Transportation (DOT) to implement substance abuse management programs in various transportation industries for safety-sensitive employees. As a result, the Federal Transit Administration is required by this legislation to develop regulations to enhance mass transit safety.

Installed a computer-based safety and security bulletin board which provides information on safety training courses, report listings, electronic mail to other users, and data file transfers via a toll-free number.

Conducted an in-depth nationwide survey to determine the extent of substance abuse in the transit industry. Responses were summarized in a final report on the state of the practice of substance abuse management.

Developed three technical assistance packages which implement comprehensive substance abuse management programs: implementation guidelines, a random testing manual, and a training module for supervisors making referrals of subordinates for reasonable suspicion drug testing. Over 6,000 copies of the implementation guidelines have been distributed.

Issued publications dealing with emergency management practices including fire safety countermeasures, and response procedures and evacuation guidelines for disabled passengers.

Planned for FY 1994

Drug and Alcohol Regulatory Support. Provide assistance to grantees to implement the Federal requirement for local drug and alcohol testing through the development and dissemination of training materials for reasonable suspicion determinations. Performance of final regulatory impact assessments. Development of a process for collecting information for Federal oversight of the drug and alcohol program is monitor industry compliance.

Fixed Rail Oversight. Assistance to States and fixed guideway transit systems in implementing state safety oversight of rail systems through the development of appropriate training courses; initial training will be targeted for State Officials. Development of an oversight monitoring system including performance data collection and analysis.

Industry Support and Monitoring. Provide training for approximately 3,000 students through the TSI training program in subjects that include Systems Safety, Accident Investigation, Emergency Preparedness, Security, and Alternative Fuels Handling. Collection and publication of improved safety data separating patron and employee deaths and injuries. Providing outreach to the transit authorities through the dissemination of timely safety information and maintaining a national computer bulletin board on all safety matters including training.

TECHNOLOGY DEVELOPMENT PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$ 3,100	$3,100	$3,200
Obligations:	$11,494	$4,067	$3,200

Background

The primary goal of the Technology Development Program is to identify and optimize the use of technology to improve efficiency, and to assist in the economical introduction of technologies into transit system use. New methods are needed for overcoming traditional barriers to the use of innovative methods, techniques and equipment in transit so that more efficient and reliable transit service will be provided.

Technology development at the Federal level was virtually non-existent during the past 12 years in spite of the continuing need of the transit industry for more advanced, cost-efficient equipment and methods. During this period, the transit manufacturing industrial base continued to shrink as a result of reduced investment in transit, and a corresponding decline in the competitiveness abroad of the U.S. transit industry.

In the years ahead, the demand for new systems, line extensions and major infrastructure rebuilding projects will increase. This increased activity in transit construction and service will lead to an increased demand for improved technologies that reduce costs, improve environmental acceptability, and system reliability.

As military spending declines, an opportunity exists for the transit industry to participate in defense conversion (dual use) activities through new cooperative ventures with the Department of Defense. Several existing military technologies are well suited for meeting the objectives of transit, and are transferrable to transit use with minimal new investment. Examples of dual use technology are: the Advanced Technology Transit Bus (ATTB), a cooperative effort between the FTA, the Southern California Rapid Transit District (SCRTD-Los Angeles) and Northrop, where low weight materials, advanced structural design, new passenger information systems and electronics will be employed; and the Advanced Public Transit Systems Program (APTS) where advanced communications technology is being utilized to enhance fleet operation, simplify system usage and enhance passenger usage and safety.

Objectives and Approach

The Technology Development Program objectives are to: reduce operations and maintenance costs; modernize existing systems; test innovative technologies and proven new systems; improve supply industry competitiveness; support more reliable and efficient transit service to the public; and disseminate information on innovative technologies. The Program has been developed through a series of aggressive outreach efforts that ensure that industry needs and priorities remain an integral part of the overall effort.

Accomplishments to Date

Publication of Construction Management and Quality Assurance/ Control Guidelines that assist transit agencies in managing major construction projects.

Automated maintenance diagnostics systems have been developed and are being used to improve the productivity and cost of maintaining rail cars and buses. These have been installed at the Washington METRO (WMATA) for rail car maintenance, and at Flint for buses. Materials and material safety studies were conducted by the Department's Volpe National Transportation Systems Center; non-destructive testing evaluation methods were demonstrated and successfully used at the New York City Transit Authority (NYCTA) and the Port Authority Trans-Hudson (PATH) rail system; and a multi-agency study was conducted by the National Academy of Sciences (NAS) on tunneling technology to reduce the cost and increase the safety of tunnel construction.

Developed an energy management computer program through Carnegie-Mellon University (CMU); demonstrated the results of a CMU study of alternative electric power sources in cooperation with a number of transit agencies; and developed an energy efficient propulsion system that is being used by most new rail systems, including SEPTA, Baltimore and Los Angeles.

Conducting advanced rail system signaling and train control projects at NYCTA and BART; and conducted a study of the feasibility of Superconducting Magnetic Energy Storage (SMES) as a means to overcome low voltage problems that are being experienced by BART in its Trans-Bay subway.

Study of the use of automated real-time wayside passenger information system as a means to improve passenger use of the NJT commuter rail system. Completed a cooperative study between the U.S. and the Province of Ontario with regard to innovative technologies that can improve transit equipment maintenance, which led to a grant award to the NYCTA to test and evaluate a computerized brake diagnostic dynamometer to determine bus braking capacity and detect brake safety problems.

Initiated Phase I of the Suspended Light Rail System Technology Pilot Project per ISTEA. Three consortia (public agency proposer with vendor) have been selected to determine the feasibility, costs and benefits of using such a technology for transporting passengers: Milwaukee County, WI; Montgomery County, MD; and BART in Oakland, CA.

In cooperation with the Southern California Rapid Transit District (SCRTD) and Houston Metro, FTA initiated the Advanced Technology Transit Bus project. In Phase I of the SCRTD Project, a new low floor, low emission, light weight bus will be designed which will meet or exceed existing clean air, accessibility, maintenance, service reliability and other industry requirements. The Houston project will make use of heavy truck components to reduce initial capital and maintenance cost requirements.

Several San Francisco Bay Area transit agencies and WMATA are evaluating improved fare collection systems that permit unimpeded transfer by passengers between bus and rail systems or between different transit systems.

The Transit Research Alliance in Pittsburgh has initiated its efforts with regard to the feasibility of deploying inertial navigation tracking and control systems to determine the precise location of rail cars and buses to improve service reliability.

Planned for FY 1994

Rail and Fixed Guideway. Continue San Francisco BART and the NYCTA projects to design advanced train control systems capable of reducing train spacing with improved safety. BART will be testing a new technology signal system on its test track;

NJT will complete design of a system to display real-time information at commuter rail stations regarding train arrivals, delays, and other relevant information. The system will be installed and evaluated under revenue service conditions.

CMU will manage a demonstration of one or more innovative methods of reducing electric power cost, such as through buying from other than a local utility, in cooperation with a selected rail transit agency.

BART will test a Superconducting Magnetic Energy Storage (SMES) on revenue service track as a means of augmenting electrical power capacity to meet increased service needs in areas where new infrastructure construction is not feasible.

Phase II of the Suspended Light Rail Transit Project will begin with a selected grantee starting environmental impact analysis and preliminary engineering design.

Develop a dual use technology program with the DOD's Advanced Projects Research Agency (ARPA) as part of their Technology Reinvestment Project (TRP) to apply applicable defense technologies to transit vehicles, equipment or facilities.

Bus Technology. Continue with the Advanced Technology Transit Bus (ATTB) Program with Los Angeles and Houston to develop low-floor, light-weight buses that will become the basis for a new industry standard.

Initiate a joint FTA/FHWA study on the issue of transit bus overweight rear axles which has become of critical importance recently due to State and local law enforcement efforts citing transit agencies for their overweight vehicles.

Bus Testing. Continue to provide technical support for the FTA Bus Testing Program, established under the Surface Transportation and Uniform Relocation Assistance Act (STURAA) of 1987. Testing is required on all new model buses before they can be purchased with Federal funds.

TRANSIT ACCESSIBILITY PROGRAM	FY 1992	FY 1993	FY 1994
Budget Authority:	$1,996	$2,000	$2,400
Obligations:	$2,493	$2,350	$2,400

Background

The Americans With Disabilities Act of 1990 serves to eliminate discrimination against individuals with disabilities and requires transit agencies to operate accessible vehicles and services. The primary goal of the Transit Accessibility Program is to improve the quality of life through mobility by creating user-friendly services for persons with disabilities. In general, the Program is designed to address the increased demands on transit created by the ADA. To tackle the numerous challenges of accessibility, the FTA assumes a leadership role in constructing and facilitating partnerships between disabled persons, manufacturers, transit operators, transit experts, and the general public.

Objectives and Approach

The objective of the Transit Accessibility Program is to assist the transit industry in developing technology to conform to the implementation requirements of the Americans with Disabilities Act. The specific research objective are to: focus on cost-effective, high impact and implementable projects; to emphasize safety improvements to benefit persons with disabilities; and to use technology sharing strategies as a tool for collaboration on research and development with other agencies and organizations.

The Transit Accessibility Program strives to address the needs of all persons with disabilities, including those in wheelchairs and persons with visual, hearing, and other physical or mental impairments.

The outreach program includes the dissemination accessibility guidelines, the conduct of workshops and demonstration projects, and on-site visits to assist State and local transit agencies in implementing the ADA requirements. Publications provide details on the costs, safety, operations and maintenance procedures, and the impacts of ADA compliance on overall transit system performance. Operational tests of new and improved technologies are evaluated to assess the viability of innovative adaptations of various technologies to meet accessibility and operational objectives.

Accomplishments to Date

Project ACTION (Accessible Community Transportation in Our Nation) managed 25 local demonstration projects during 1991-1992. Research areas include: identifying people with disabilities and their transportation needs; outreach and marketing; training programs for transit personnel; training for transit users with disabilities; and technology to eliminate barriers to transportation and accessibility.

Specific projects include: conducted a nationwide study on persons with disabilities and their transit needs; conducted a nationwide study on how many transit systems are fully accessible; developed training for private providers of public transportation, such as those who provide taxi and airport shuttle services, to assist them in implementing the ADA requirements; developed training for human services providers of disabled school age children on the use of accessible fixed route services; updated FTA's 1986 Bus Wheelchair Accessibility Guidelines Specification on Lifts, Ramps and Securement Systems; and developed accessibility guidelines regarding the special needs of the hearing, visual, and mental impaired persons, as well as mobility impaired ambulatory persons, with regarding to the use of public transportation services.
Planned for FY 1994

Specialized Transportation: The National Easter Seal Society's Project ACTION will continue research and local demonstration projects of new and innovative policy initiatives and technologies that improve the effectiveness of providing public transportation services for persons with disabilities.

ADA Studies: Document and disseminate existing exemplary practices and procedures to assist transit agencies in improving their individual accessibility programs. This effort will include; paratransit eligibility; programs to encourage fixed route service for the disabled; and exemplary procedures and practices used in providing paratransit and fixed-route services.

Continue research into the detectability and durability of various products that can be used as tactile detectable warning surfaces for rail platform edges and on slopes (such as on curb ramps) to meet the requirements of the ADA regulations.

Perform studies to determine the equipment and facility improvements needed to overcome mobility barriers. Special emphasis will be placed on the problems and safety issues of the securement of wheelchairs and other mobility aids, as well as standees on lifts.

Guidance in the form of video tapes and reports to be used to train the disabled community on using the transit systems and to train operators in the provision of transit service for persons with disabilities.

ADA Safety Reviews: On-site safety audits of the implementation of accessibility requirements with regard to transit equipment and facilities will be conducted to review: accident data for persons with disabilities; maintenance and training procedures for accessibility equipment; and the proper installation of the accessibility equipment. Based on the audits, a set of recommendations for correcting the problems found will be prepared.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
MISCELLANEOUS EXPIRED ACCOUNTS
Program and Financing (in thousands of dollars)

Identification code 69-9913-0-1-401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
10.00	Total obligations (object class 41.0)	999	22	...
	Financing:			
21.40	Unobligated balance available, start of year	(22)	(22)	...
24.40	Unobligated balance available, end of year	22	...	...
25.00	Unobligated balance expiring	2,440	...	...
50.05	Reappropriation (indefinite)	3,439	...	...
	Relation of obligations to outlays:			
71.00	Total obligations	999	22	...
72.40	Obligated balance, start of year	86,189	59,084	24,834
74.40	Obligated balance, end of year	(59,084)	(24,834)	(10)
90.00	Outlays	28,104	34,272	24,824

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
MISCELLANEOUS EXPIRED ACCOUNTS
STATUS OF DIRECT LOANS
(In thousands of dollars)

Identification code 69–9913–0–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Cumulative balance of direct loans outstanding:			
1210 Outstanding, start of year	177,000	177,000	177,000
1290 Outstanding, end of year	177,000	177,000	177,000

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
MISCELLANEOUS EXPIRED ACCOUNTS
STATUS OF GUARANTEED LOANS
(in thousands of dollars)

Identification code 69-9913-0-1-401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Cumulative balance of guaranteed loans outstanding:			
2210 Outstanding, start of year	820,000	820,000	820,000
2290 Outstanding, end of year	820,000	820,000	820,000
MEMORANDUM:			
2299 Guaranteed amount of guaranteed loans outstanding, end of year	820,000	820,000	820,000

PROGRAM AND PERFORMANCE STATEMENT

MISCELLANEOUS EXPIRED ACCOUNTS

These schedules display programs that no longer require appropriations and thus reflect obligations and outlays made under prior year appropriations. Among these programs is the general funded appropriation for Discretionary grants for 1983 and earlier years.

APPROPRIATION LANGUAGE

Trust Funds

Discretionary Grants

(Limitation on Obligations)

(Highway Trust Fund)

None of the funds in this Act shall be available for the implementation or execution of programs the obligations for which are in excess of [$1,725,000,000] *$1,771,575,000* in fiscal year [1993] *1994* for grants under the contract authority in section 21(b) of the Federal Transit Act: *Provided*, That, notwithstanding any provision of law there shall be available for fixed guideway modernization [$666,255,000] *$760,060,000*, there shall be available for the replacement, rehabilitation, and purchase of buses and related equipment and the construction of bus-related facilities [$336,940,000] *$354,315,000*, and there shall be available for new fixed guideway systems [$721,805,000, of which --

not less than $30,000,000 for the Atlanta MARTA North line Extension Project:

not less than $25,000,000 for the Baltimore LRT Extensions Project:

not less than $38,250,000 for the South Boston Piers Transitway Project;

not less than $21,250,000 for the Chicago Central Area Connector Project;

not less than $1,500,000 for the Cleveland Dual Hub Corridor Project;

not less than $42,500,000 for the Dallas South Oak Cliff LRT Project;

not less than $76,500,000 for the Honolulu Rapid Transit Starter Line of Projects;

not less than $34,000,000 for the Houston Regional Bus Plan Program of Projects;

not less than $10,000,000 for the Jacksonville ASE Extension Project;

not less than $110,000,000 for the Los Angeles Metro Rail MOS-2 and MOS-3 Projects;

not less than $10,000,000 for Maryland Commuter Rail Project, of which $3,000,000 shall be available for the Waldorf Corridor;

not less than $5,434,000 for the Miami Metromover Stage I Completion-Omni/Brickell Project and not less than $2,171,000 to restore urban initiative funds provided to Miami in Public Law 98-473 but transferred to the Metromover Project in 1989;

not less than $65,430,000 for the New Jersey Urban Core Project;

not less than $15,895,000 for the New York Queens Connection Project;

not less than $2,000,000 for the Orlando OSCAR LRT Project;
not less the $700,000 for the Philadelphia Cross County Commuter Rail Project;
not less than $17,000,000 for the Pittsburgh Busway Projects;
not less than $68,000,000 for the Portland Westside LRT Project;
not less than $1,000,000 for the Sacramento LRT Extension Project;
not less than $1,700,000 for the San Diego Mid-Coast Extension Project;
not less than $45,000,000 for the San Francisco Airport BART Extension Project and the Tasman Corridor LRT Project;
not less than $15,300,000 for the Seattle-Tacoma Commuter Rail Project;
not less than $3,000,000 for the Salt Lake City South LRT Project;
not less than $42,500,000 for St. Louis METRO Link Projects;
not less than $4,675,000 for the Florida Tri-County Commuter Rail Project;
not less than $4,500,000 for the Hawthorne-Warwick Commuter Rail Project;
not less than $3,000,000 for the Lakewood, Freehold, and Matawan or Jamesburg Commuter Rail Project; and
not less than $25,500,000 for the Boston, Massachusetts to Portland, Maine Commuter Rail Project] *$657,200,000: Provided further, That notwithstanding sections 3030, 3031, 3032, 3033, 3034 and 3035 of P.L. 102-240 and any other provision of law, amounts provided under this head for new fixed guideway systems shall be available for projects that meet the criteria established by section 3(i) of the Federal Transit Act, as amended, and are consistent with the recommendations of the report issued for fiscal year 1994 pursuant to section 3(j) of such Act. (Department of Transportation and Related Agencies Appropriations Act, 1993.)*

MASS TRANSIT CAPITAL FUND

(Liquidation of Contract Authorization)

(Highway Trust Fund)

For payment of obligations incurred in carrying out section 21(b) of the Federal Transit Act, administered by the Federal Transit Administration, [$1,500,000,000] *$1,000,000,000*, to be derived from the Highway Trust Fund and to remain available until expended. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
MASS TRANSIT CAPITAL FUND
(LIQUIDATION OF CONTRACT AUTHORIZATION)
(HIGHWAY TRUST FUND)

Program and Financing (in thousands of dollars)

Identification code 69–8191–0–7–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Discretionary grants	1,491,213	1,749,170	1,850,000
00.02	Formula grants	164	1,330	...
00.91	Total direct program	1,491,377	1,750,500	1,850,000
01.01	Reimbursable program	1,445	...	...
10.00	Total obligations	1,492,822	1,750,500	1,850,000
	Financing:			
17.00	Recovery of prior year obligations	(39,890)	...	...
	Unobligated balance available, start of year:			
21.40	Appropriation	...	(10.000)	...
21.49	Contract authority	(1,094,299)	(1,065,500)	(1,050,000)
	Unobligated balance available, end of year:			
24.40	Appropriation	10,000	...	...
24.49	Contract authority	1,065,500	1,050,000	985,000
25.00	Unobligated balance expiring pursuant to Public Law 102–240	477,312	...	...
39.00	Budget authority (gross)	1,911.445	1,725,000	1,785,000
	Budget authority:			
	Current:			
40.00	Appropriation	1,510,000	1,500,000	1,000,000
40.49	Portion applied to liquidate contract authority	(1,500,000)	(1,500,000)	(1,000,000)
43.00	Appropriation (total)	10.000	...	...
	Permanent:			
68.00	Spending authority from offsetting collections	1,445	...	...
69.10	Contract authority (Public Laws 100–17 and 102–240)	1,900,000	1,725,000	1,785,000
	Relation of obligations to outlays:			
71.00	Total obligations	1,492,822	1,750,500	1,850,000
	Obligated balance, start of year:			
72.40	Appropriation	398,626	630,781	850,242
72.49	Contract authority	3,400,083	3,351,570	3,592,070
	Obligated balance, end of year:			
74.40	Appropriation	(630,781)	(850,242)	(880,310)
74.49	Contract authority	(3,351,570)	(3,592,070)	(3,941,639)
78.00	Adjustments in unexpired accounts	(39,890)	...	...
87.00	Outlays (gross)	1,269,290	1,290,539	1,470,363
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal funds	(1,445)	...	...
89.00	Budget authority (net)	1,910,000	1,725,000	1,785,000
90.00	Outlays (net)	1,267,845	1,290,539	1,470,363

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

MASS TRANSIT CAPITAL FUND
(HIGHWAY TRUST FUND)

STATUS OF CONTRACT AUTHORITY
(in thousands of dollars)

Identification code 69–8191–0–7–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Balance, start of year	4,494,382	4,417,070	4,642,070
Contract authority	1,900,000	1,725,000	1,785,000
Balance expiring pursuant to P.L. 102–240	(477,312)	0	...
Appropriation to liquidate contract authority	(1.500.000)	(1.500.000)	(1.000.000)
Balance, end of year	4,417,070	4,642,070	5,427,070

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

DISCRETIONARY GRANTS

SUMMARY OF BUDGET AUTHORITY AND OUTLAYS
(in thousands of dollars)

	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Enacted/requested:			
Budget authority	...	...	...
Outlays	...	...	...
Stimulus and other supplemental proposals:			
Budget authority	...	270,000	...
Outlays	...	122,055	147,945
Total:			
Budget authority	...	270,000	...
Outlays	...	122,055	147,945

PROGRAM AND PERFORMANCE STATEMENT

DISCRETIONARY GRANTS

For 1994, a total of $1.8 billion is requested for Discretionary Grants. The $1.8 billion request will be allocated among the following three activities:

Fixed guideway modernization. - $760 million for the acquisition, reconstruction and improvement of facilities and equipment for use on fixed guideways including heavy and light rail, commuter rail, and ferry boat operations.

New Starts. - $657 million for the construction of new fixed guideway systems and extensions to existing fixed guideway systems.

Bus and bus-related facilities. - $354 million for the replacement, rehabilitation and purchase of buses and related equipment and the construction of bus-related facilities. This funding will assist public transit authorities in meeting the requirements of the recently enacted Clean Air Act Amendments and the Americans with Disabilities Act.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

MASS TRANSIT CAPITAL FUND
(HIGHWAY TRUST FUND)

Object Classification
(in thousands of dollars)

Identification code 69-8191-0-7-401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Direct obligations:			
41.0 Grants, subsidies, and contributions	1,491,377	1,750,500	1,850,000
99.0 Reimbursable obligations	1,445	...	...
99.9 Total obligations	1,492,822	1,750,500	1,850,000

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

DISCRETIONARY GRANTS
(Mass Transit Account of the Highway Trust Fund)

Comparative Summary of Activity
(Dollars in Thousands)

	FY 1992 Enacted	FY 1993 Enacted	FY 1994 Request
Budget Authority:			
Contract Authority	$1,900,000	$1,725,000	$1,785,000
Appropriated	10,000		
Total BA	$1,910,000	$1,725,000	$1,785,000
Obligation Limitation:	$1,910,000	$1,725,000	$1,771,575
Fixed Guideway Mod........	(536,870)	(666,255)	(760,060)
New Starts................	(536,870)	(721,805)	(657,200)
Bus and Bus-related.......	(278,435)	(336,940)	(354,315)
Section 8 Planning........	(43,688)	a/	a/
Elderly and Disabled......	(54,884)	b/	b/
University Transportation Centers.................	(6,985)	c/	c/
Bus Testing Facility......	(3,992)	...	...
Transit Planning and Research............	(39,427)	c/	c/
Section 9B Formula Grants.................	(408,849)	d/	d/
Liquidating Cash:			
Appropriation	(1,500,000)	(1,500,000)	(1,000,000)

a/Included under Transit Planning and Research, except in FY 1994 an additional take-down is from Formula Grants.
b/Included under Formula Grants.
c/Shown as a separate account.
d/ISTEA no longer funds section 9B under the discretionary account.

For FY 1994, the ISTEA authorizes $1.785 billion in trust funded contract authority and $265 million in General Funds for Discretionary Grants. The FTA is requesting an obligation limitation of $1.772 billion against the trust funded contract authority. No general funds are requested since the Trust Funded contract authority is more than sufficient to cover the requested funding level.

The $1.772 billion obligation limitation requested for FY 1994 will be allocated so as to provide $760.1 million, or 42.9 percent for Fixed Guideway Modernization projects, $657.2 million, or 37.1 percent for New Starts, and $354.3 million, or 20 percent, for Bus and Bus-Related activities. This allocation varies somewhat from the 40-40-20 split contained in ISTEA. This realignment reflects the amount of New Start funds that projects under Full Funding Grants Agreements (FFGA) and other meritorious projects could likely use in FY 1994, and the Administration's commitment to upgrade of rail facilities and equipment, thus accelerating the elimination of the rail modernization backlog.

The Federal match for Discretionary Grants is 80 percent, with State and local governments required to fund 20 percent of project costs. However, the Federal share is 90 percent for the incremental costs of bus-related equipment needed to meet the requirements of the Clean Air Act (CAA) and the Americans with Disabilities Act (ADA).

A takedown of 3/4 of one percent is authorized under Section 23 of the Federal transit Act, as amended, for project management oversight, safety, procurement, management and financial compliance reviews, and audits.

Fixed Guideway Modernization (previously Rail Modernization)

The section 3 Fixed Guideway Modernization funding level of $760.1 million along with section 9 fixed guideway modernization funds, and State and local match is sufficient to maintain fixed guideway conditions and maintain performance. Further, this increased level of funding will allow some improvement to take place in heavy and light rail, commuter rail, and ferry boat operations.

The Fixed Guideway Modernization funding is apportioned according to a statutorily prescribed formula with four tiers. Tiers 1 and 2 allocate the first $497.7 million to eleven legislatively specified fixed guideway areas. Tier 3 allocates one-half of the next $70 million to the specified eleven urbanized areas. The remaining one half is allocated to all other urbanized areas with fixed guideways at least 7 years old on the basis of the section 9 fixed guideway tier formula factors. Tier 4 allocates the remaining funds to all of these urbanized areas in accordance with the section 9 formula for the fixed guideway tier. If the amount made available is less than the sum of the first two tiers, then the funding is to be apportioned to all of the areas eligible for tiers 1 and 2 on a proportional basis.

After the 3/4 percent takedown for oversight, $754.4 million remains for allocation. Thus, funding will be allocated according to the requirements for all four tiers. Listed below are the areas that receive funding, and the overall percentage they receive from all tiers. The first group are those legislatively specified areas with historic rail systems. The second group consists of all other areas with fixed-guideways in operation for at least seven years.

Legislatively specified areas:	Percentage	$ Amount In Millions*
Baltimore	1.65	$ 12.4
Boston	7.11	53.7
Chicago/Northwestern Indiana	14.28	107.7
Cleveland	1.84	13.9
New Orleans	0.29	2.2
New York	35.20	265.5
Northeastern New Jersey	8.88	67.0
Philadelphia/Southern New Jersey	10.17	76.7
Pittsburgh	2.06	15.6
San Francisco	6.64	50.1
Southwestern Connecticut	4.28	32.3
Subtotal	92.4%	$697.1
All other fixed guideway areas:	7.59%	$ 57.3
Total Apportionment	100.00%	$754.4
Oversight		5.7
Total Fixed Guideway		$760.1

*Amounts are estimates based on currently available Section 15 data. Actual figures for FY 1994 will be calculated using the most recent section 15 data available at the time of enactment.

New Starts

A total of $657.2 million, of the requested $1.772 billion obligation limitation will be available for new fixed guideway systems and extensions to fixed guideway systems (New Starts).

The specific allocation of FY 1994 New Starts funding will be addressed in the section 3(j) report, "Report on Funding Levels and Allocations of Funds" to be submitted to Congress in early 1993. While other projects will be recommended in the 3(j) Report, funding will first be used to fund projects in Los Angeles, CA, St. Louis, MO, and Portland, OR, for which FTA has existing FFGAs.

The FTA's recommendations for allocating New Starts funding will be based on the following principles:

- Existing FTA Full Funding Grant Agreement (FFGA) commitments should be honored before any additional commitments are made.

- Statutory earmarks in ISTEA and Appropriations Bills should be honored to the extent that projects are ready for funding.
- Funds should not be provided ahead of the time at which they are actually needed.
- Any project recommended for new funding commitments should meet the project justification, finance and process criteria established by Section 3(i).
- Funds should be allocated in a manner to ensure that operable facilities are completed; the "operable segment" concept.
- Funds should be allocated to projects that are expected to complete preliminary engineering by the end of FY 1994 and will then be ready to begin final design and construction.
- Firm funding commitments, embodied in Full Funding Grant agreements, should not be made until preliminary engineering is completed, since costs, benefits and impacts are not accurately known until this level of engineering has been completed.
- Letters of Intent (ultimately anticipating Full Funding Grant Agreements) authorized by Section 3(a)(4) of the FT Act should be issued only to worthy projects which have proceeded far enough along that their justification and level of local financial commitment can be established with some certainty.
- Letters of Intent should be awarded to the best projects, in terms of project justification and financial commitment, in an order which is based on the degree to which each project meets these criteria.
- Sufficient funding should be provided to the most worthy projects to allow them to proceed through the process on a reasonable schedule.

Bus and Bus-related Projects

A total of $354.3 million of the requested $1.772 billion obligation limitation will be available for bus and bus-related equipment.

As in the past, these funds will be used to supplement the sections 9 and 18 Formula Grants programs. Once grantees have developed program plans utilizing their Formula Grants apportionments for FY 1994, decisions can be made on how best to allocate section 3 bus funds. Since the Formula Grants programs will be funded at a sufficient level to meet capital routine bus and paratransit system needs these funds will be used to fund extraordinary needs that cannot be accommodated within existing formula resources and to purchase equipment necessary to comply with the requirements of the Clean Air Act and the Americans with Disabilities Act.

Bus and Bus-related funds in FY 1994 will continue to fund bus projects contained in the ISTEA authorization, including the Federal share of bus testing fees charged for testing a vehicle at the Bus Testing Facility - $2 million, and the State of Michigan Bus Project (Section 3035(kk) of ISTEA) - $10 million.

In addition, bus and bus-related projects will fund bus purchases in nonurban areas, and help regional mobility by supplying start-up capital assistance for neighborhood-based and community transit services to be provided by neighborhood and civic groups, business communities, and a variety of private entrepreneurs.

Bus and bus-related funding will support the introduction of newly designed buses and bus technology into the public transit markets. Thus providing better designed more efficient running vehicles to help meet the air-quality and emission standards dictated by the clear air legislation. Bus funds would support the Advanced Technology Transit Bus (ATTB), a cooperative effort between the FTA, the Los Angeles and Houston transit systems, and industry, where low weight materials, advanced structural design, new passenger information systems and electronics are employed. In FY 1994, the effort will focus on detail design of this advanced design bus. In addition, FTA would continue to fund alternative fueled vehicles and conversions of maintenance facilities to allow for natural gas, methanol, ethanol, or LPG fueled buses.

In FY 1994, FTA hopes to introduce into public transit service fuel cell/battery propulsion buses being developed under the TPR Clean Air Program. These energy efficient transit vehicles and the electric transit vehicles developed under the ISTEA mandated Advanced Transportation Systems and Electric Vehicles Research and Development Program will be ready to be deployed in transit service.

FTA will continue to equip transit operations with advanced communications technology developed as part of the Advanced Public Transit Systems (APTS) activity under the TPR program. APTS technology provides transit users with current information on traffic conditions, transit routes and schedules, carpool/vanpool options, alternative routes, etc. APTS applies many technologies developed by defence contractors to increase passenger service, increase operational efficiency, and decrease operating costs. This is a solid example of defence developed technologies being converted to transit use.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
DISCRETIONARY GRANTS – TRUST FUND

Statue of Liquidating Cash (in thousands of dollars)

Identification code 69–8191–0–7–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Cash balance, start of year	398,626	630,781	840,242
Appropriation	1,500,000	1,500,000	1,000,000
Total, cash available	1,898,626	2,130,781	1,840,242
Less outlays	(1,267,845)	(1,290,539)	(1,470,363)
Cash balance, end of year	630,781	840,242	369,879

APPROPRIATION LANGUAGE

TRUST FUND SHARE OF TRANSIT PROGRAMS

(LIQUIDATION OF CONTRACT AUTHORIZATION)

(HIGHWAY TRUST FUND)

For payment of obligations incurred in carrying out section 21(a) of the Federal Transit Act, [$1,134,150,000] *$1,190,000,000,* to remain available until expended and to be derived from the Highway Trust Fund: *Provided,* That [$25,150,000] *$18,162,000* shall be paid from the Mass Transit Account of the Highway Trust Fund to the Federal Transit Administration's administrative expenses account: *Provided further,* That [$1,049,025,000] *$1,129,951,000* shall be paid from the Mass Transit Account of the Highway Trust Fund to the Federal Transit Administration's formula grants account: *Provided further,* That [$3,975,000] *$2,762,000* shall be paid from the Mass Transit Account of the Highway Trust Fund to the Federal Transit Administration's university transportation centers account: *Provided further*, That [$56,000,000] *$39,125,000* shall be paid from the Mass Transit Account of the Highway Trust Fund to the Federal Transit Administration's transit planning and research account. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRUST FUND SHARE OF TRANSIT PROGRAMS
(HIGHWAY TRUST FUND)

Program and Financing (in thousands of dollars)

Identification code 69–8350–0–7–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Administrative Expenses	...	25,150	18,162
00.02	University Transportation Centers	...	3,975	2,762
00.03	Transit Planning and Research	...	56.000	39.125
00.04	Formula Grants	...	1,049,025	1,129,951
10.00	Total obligations (Object class 25.2)	...	1,134.150	1.190,000
	Financing:			
21.49	Unobligated balance available, start of year	...	...	(15,850)
24.49	Unobligated balance available, end of year	...	15,850	15.850
39.00	Budget authority	...	1,150,000	1,190,000
	Budget authority:			
	Current:			
40.00	Appropriation	...	1,134,150	1,190,000
40.49	Portion applied to liquidate contract authority	...	(1,134.150)	(1,190.000)
43.00	Appropriation (total)	...	...	...
	Permanent:			
69.10	Contract authority	...	1,150,000	1.190.000
	Relation of obligations to outlays:			
71.00	Total obligations	...	1,134,150	1,190.000
90.00	Outlays	...	1,134,150	1,190,000

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRUST FUND SHARE OF TRANSIT PROGRAMS
(HIGHWAY TRUST FUND)

SUMMARY OF BUDGET AUTHORITY AND OUTLAYS
(in thousands of dollars)

	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Enacted/requested:			
Budget authority	...	1,150,000	1,190,000
Outlays	...	1,134,150	1,190,000
Stimulus and other supplemental proposals:			
Budget authority	...	...	...
Outlays	...	15,850	...
Total:			
Budget authority	...	1,150,000	1,190,000
Outlays	...	1,150,000	1,190,000

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRUST FUND SHARE OF TRANSIT PROGRAMS
Status of Contract Authority
(in thousands of dollars)

Identification code 69–8350–0–7–401	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
Balance, start of year	...	...	...
Contract authority	...	1,150,000	1,190,000
Appropriation to liquidate contract authority	...	(1,134,150)	(1,190,000)
Stimulus proposal to liquidate contract authority	...	(15,850)	...
Balance, end of year	...	...	...

PROGRAM AND PERFORMANCE STATEMENT

TRUST FUND SHARE OF TRANSIT PROGRAMS

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) authorizes a combination of both trust and general funding for the four FTA appropriations shown above.

The language appropriating the amounts reflected in this account as well as the program and performance narrative statements appear with those accounts.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
STATUS OF THE MASS TRANSIT ACCOUNT OF THE HIGHWAY TRUST FUND

(in thousande of dollars)

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
Unexpended balance, etart of year	9,250,122	9,798,159	10,027,020
Cash income during the year, Governmental receipts:			
Motor fuel taxes	1,069,825	1,959,000	1,987,000
Interest on investments	746,058	710,400	639,200
Total annual income	1,815,883	2,669,400	2,626,200
Cash outlays during the year:			
Discretionary Grants (liquidation of contract authorization)	(1,267,845)	(1,290,539)	(1,470,363)
Trust fund share of Transit programs	...	(1,134,150)	(1,190,000)
Stimulus proposal	...	(15,850)	...
Total annual outlays	(1,267.845)	(2,440,539)	(2,660,363)
Unexpended balance, end of year	9,798,159	10,027,020	9,992,857

Detail may not add due to rounding

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS (SUPPLEMENTAL)
Program and Financing (in thousands of dollars)

Identification code 69–1129–1–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
	Direct program:			
00.01	Urban formula grants	...	422,647	...
00.02	Elderly and Disabled	...	17,423	...
00.03	Nonurban formula grants	...	26,420	...
00.91	Total direct program	...	466,490	...
01.01	Reimbursable program	...	15,850	...
10.00	Total obligations	...	482,340	...
	Financing:	...	578,805	...
39.00	Budget authority (gross)	...	482,340	...
	Budget authority:			
	Current:			
40.00	Appropriation	...	466,490	...
	Permanent:			
68.00	Spending authority from offsetting collections	...	15,850	...
	Relation of obligations to outlays:			
71.00	Total obligations	...	482,340	...
72.40	Obligated balance, start of year	...	...	458,223
74.40	Obligated balance, end of year	...	(458,223)	(352,564)
87.00	Outlays (gross)	...	24,117	105,659
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.30	Trust funds	...	(15,850)	...
89.00	Budget authority (net)	...	466,490	...
90.00	Outlays (net)	...	8,267	105,659

PROGRAM AND PERFORMANCE

FORMULA GRANTS - SUPPLEMENTAL

This supplemental request would provide $423 million in urban formula capital grants to transit agencies for mass transit capital improvements such as bus and rail car purchases, repair and improvement of bus maintenance facilities, and rail rehabilitation projects. In addition, it provides $26 million in rural formula grants and $17 million for the Elderly and Disabled grant program.

This proposal was submitted to the Congress by the President on February 22, 1993, as part of his program for short-term economic stimulus.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS (SUPPLEMENTAL)
Object Classification
(in thousands of dollars)

Identification code 69–1129–1–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
41.0 Grants, subsidies, and contributions	...	466,490	...
99.0 Reimbursable obligations	...	15,850	...
99.9 Total obligations	...	482,340	...

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
DISCRETIONARY GRANTS (SUPPLEMENTAL)
Program and Financing (in thousands of dollars)

Identification code 69–1135–1–1–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Program by activities:			
10.00 Total obligations (object class 41.0)	...	270,000	...
Financing:			
40.00 Budget authority (appropriation)	...	270,000	...
Relation of obligations to outlays:			
71.00 Total obligations	...	270,000	...
72.40 Obligated balance, start of year	...	0	147,945
74.40 Obligated balance, end of year	...	(147,945)	...
90.00 Outlays	...	122,055	147,945

PROGRAM AND PERFORMANCE

DISCRETIONARY GRANTS - SUPPLEMENTAL

This supplemental request would provide discretionary grants to transit agencies to purchases buses and vans. These funds can be spent relatively quickly and are needed to replace over-age vehicles currently in the U.S. transit fleet.

This proposal was submitted to the Congress by the President on February 22, 1993, as part of his program for short-term economic stimulus.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRUST FUND SHARE OF EXPENSES (SUPPLEMENTAL)

(LIQUIDATION OF CONTRACT AUTHORIZATION)

(HIGHWAY TRUST FUND)

Program and Financing (in thousands of dollars)

Identification code 69-8350-1-7-401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.04	Formula Grants	...	15,850	...
10.00	Total obligations (Object class 25.2)	...	15,850	...
	Financing:			
21.49	Unobligated balance available, start of year	...	...	15,850
24.49	Unobligated balance available, end of year	...	(15,850)	(15,850)
39.00	Budget authority (gross)	...	...	...
	Budget authority:			
40.00	Appropriation	...	15,850	...
40.49	Portion applied to liquidate contract authority	...	(15,850)	...
43.00	Appropriation (total)	...	...	...
	Relation of obligations to outlays:			
71.00	Total obligations	...	15,850	...
90.00	Outlays	...	15,850	...

PROGRAM AND PERFORMANCE

TRUST FUND SHARE OF TRANSIT PROGRAMS - SUPPLEMENTAL

This supplemental request would allow an additional $16 million in previously authorized contract authority to be used for urban formula capital grants. These grants will fund mass transit capital improvements such as bus and rail car purchases, repair and improvement of bus maintenance facilities, and rail rehabilitation projects.

This proposal was submitted to the Congress by the President on February 22, 1993, as part of his program for short-term economic stimulus.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
ADMINISTRATIVE EXPENSES
Program and Financing (in thousands of dollars)

Identification code: 69–1120–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Direct program	36,941	13,400	21,295
01.01	Reimbursable program	23	25,150	18,162
10.00	Total obligations	36.964	38,550	39.457
	Financing:			
25.00	Unobligated balance expiring	59	...	...
39.00	Budget authority (gross)	37,023	38,550	39,457
	Budget authority:			
	Current:			
40.00	Appropriation	37,000	13,400	21,295
	Permanent:			
68.00	Spending authority from offsetting collections	23	25,150	18,162
	Relation of obligations to outlays:			
71.00	Total obligations	36,964	38,550	39,457
72.40	Obligated balance, start of year	4,102	3,223	3,855
74.40	Obligated balance, end of year	(3,223)	(3,855)	(3,946)
77.00	Adjustments in expired accounts	(338)	...	...
87.00	Outlays (gross)	37,506	37,918	39,366
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal funds	(23)	...	...
88.30	Trust funds	...	(25,150)	(18,162)
88.90	Total, offsetting collections	(23)	(25,150)	(18,162)
89.00	Budget authority (net)	37,000	13,400	21,295
90.00	Outlays (net)	37,483	12,768	21,204

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
ADMINISTRATIVE EXPENSES
OBJECT CLASSIFICATION
(in thousands of dollars)

Identification code 69–1120–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Direct obligations:				
	Personnel compensation:			
11.1	Full-time permanent	22,973	9,050	14,315
11.3	Other than full-time permanent	710	145	227
11.5	Other personnel compensation	632	164	255
11.9	Total personnel compensation	24,315	9,360	14,798
12.1	Civilian personnel benefits	3,734	1,478	2,335
21.0	Travel and transportation of persons	973	282	474
22.0	Transportation of things	20	3	5
23.2	Rental payments to others	103	36	57
23.3	Comm., utilities, and miscellaneous charges	544	162	252
24.0	Printing and reproduction	40	14	21
25.2	Other services	5,873	1,995	3,117
26.0	Supplies and materials	219	52	82
31.0	Equipment	1,120	17	153
43.0	Interest and dividends	...	...	1
99.0	Subtotal, direct obligations	36,941	13,400	21,295
99.0	Reimbursable Obligations	23	25,150	18,162
99.9	Total obligations	36,964	38,550	39,457

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
RESEARCH, TRAINING, AND HUMAN RESOURCES
OBJECT CLASSIFICATION
(in thousands of dollars)

Identification code 69–1121–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Direct obligations:			
25.1	Consulting services	1,849	...	
25.2	Other services	5,593	6,963	...
41.0	Grants, subsidies, and contributions	5,181	2.321	...
99.0	Subtotal, direct obligations	12,623	9,284	...
99.0	Reimbursable obligations	75	...	
99.9	Total obligations	12,698	9,284	...

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS

Program and Financing (in thousands of dollars)

Identification code 69–1129–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Program by activities:				
Direct program:				
00.01	Urban formula grants	1,449,018	617,758	687,176
00.02	Nonurban formula grants	112,154	49,349	38.740
00.03	Rural transit assistance	876	15	...
00.91	Total direct program	1.562.048	667.122	725.916
01.01	Reimbursable program	...	1,049,025	1.129,951
10.00	Total obligations	1,562,048	1,716,147	1.855,867
Financing:				
17.00	Recovery of prior year obligations	(137,169)	...	...
21.40	Unobligated balance available, start of year	(376,315)	(466,147)	(450,000)
22.00	Unobligated balance transferred, net	308	...	...
24.40	Unobligated balance available, end of year	466,147	450,000	350,000
25.00	Unobligated balance expiring	4,981	...	...
39.00	Budget authority (gross)	1,520,000	1,700,000	1,755,867
Budget authority:				
Current:				
40.00	Appropriation	1,520,000	650,975	625,916
Permanent:				
68.00	Spending authority from offsetting collections	...	1,049,025	1,129,951
Relation of obligations to outlays:				
71.00	Total obligations	1,562,048	1,716,147	1,855,867
72.40	Obligated balance, start of year	2,932,748	2,489,378	2,411,276
74.40	Obligated balance, end of year	(2,489,378)	(2,411,276)	(2,499.400)
78.00	Adjustments in unexpired accounts	(137,169)	...	...
87.00	Outlays (gross)	1.868.249	1.794.249	1.767,743
Adjustments to budget authority and outlays:				
Deductions for offsetting collections:				
88.30	Trust funds	...	(1,049,025)	(1,129,951)
89.00	Budget authority (net)	1,520,000	650,975	625.916
90.00	Outlays (net)	1,868,249	745,224	637,792

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
FORMULA GRANTS (SUPPLEMENTAL)
Program and Financing (in thousands of dollars)

Identification code 69-1129-1-1-401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Program by activities:			
Direct program:			
00.01 Urban formula grants	...	422,647	...
00.02 Elderly and Disabled	...	17,423	...
00.03 Nonurban formula grants	...	26,420	...
00.91 Total direct program	...	466,490	...
01.01 Reimbursable program	...	15,850	...
10.00 Total obligations	...	482,340	...
Financing:			
39.00 Budget authority (gross)	...	482,340	...
Budget authority:			
Current:			
40.00 Appropriation	...	466,490	...
Permanent:			
68.00 Spending authority from offsetting collections	...	15,850	...
Relation of obligations to outlays:			
71.00 Total obligations	...	482,340	...
72.40 Obligated balance, start of year	...	...	458,223
74.40 Obligated balance, end of year	...	(458,223)	(352,564)
87.00 Outlays (gross)	...	24,117	105,659
Adjustments to budget authority and outlays:			
Deductions for offsetting collections:			
88.30 Trust funds	...	(15,850)	...
89.00 Budget authority (net)	...	466,490	...
90.00 Outlays (net)	...	8,267	105,659

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
UNIVERSITY TRANSPORTATION CENTERS
Program and Financing (in thousands of dollars)

Identification code 69–1136–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Direct program	...	2,025	3,238
01.01	Reimbursable program	...	3,975	2,762
10.00	Total obligations	...	6,000	6,000
	Financing:			
39.00	Budget authority (gross)	...	6,000	6,000
	Budget authority:			
	Current:			
40.00	Appropriation	...	2,025	3,238
	Permanent:			
68.00	Spending authority from offsetting collections	...	3,975	2,762
	Relation of obligations to outlays:			
71.00	Total obligations	...	6,000	6,000
72.40	Obligated balance, start of year	...	...	4,800
74.40	Obligated balance, end of year	...	(4,800)	(7,680)
87.00	Outlays (gross)	...	1,200	3,120
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.30	Trust funds	...	(3,975)	(2,762)
89.00	Budget authority (net)	...	2,025	2,777
90.00	Outlays (net)	...	(2,775)	358

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRANSIT PLANNING AND RESEARCH
Program and Financing (in thousands of dollars)

Identification code 69–1137–0–1–401		FY 1992 actual	FY 1993 estimate	FY 1994 estimate
	Program by activities:			
00.01	Direct program	...	29,000	45,875
01.01	Reimbursable program	...	56,000	39,125
10.00	Total obligations	...	85,000	85,000
	Financing:			
39.00	Budget authority (gross)	...	85,000	85,000
	Budget authority:			
	Current:			
40.00	Appropriation	...	29,000	45,875
	Permanent:			
68.00	Spending authority from offsetting collections	...	56,000	39,125
	Relation of obligations to outlays:			
71.00	Total obligations	...	85,000	85,000
72.40	Obligated balance, start of year	...	...	76,925
74.40	Obligated balance, end of year	...	(76,925)	(116,450)
87.00	Outlays (gross)	...	8,075	45,475
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.30	Trust funds	...	(56,000)	(39,125)
89.00	Budget authority (net)	...	29,000	45,875
90.00	Outlays (net)	...	(47,925)	6,350

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
TRANSIT PLANNING AND RESEARCH
Object Classification
(in thousands of dollars)

Identification code 69-1137-0-1-401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Direct obligations:			
25.1 Consulting services	...	2,398	5,505
25.2 Other services	...	4,852	5,964
41.0 Grants, subsidies, and contributions	...	21,750	34,406
99.0 Subtotal, direct obligations	...	29,000	45,875
99.0 Reimbursable obligations	...	56,000	39,125
99.9 Total obligations	...	85,000	85,000

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
DISCRETIONARY GRANTS – TRUST FUND
Object Classification
(in thousands of dollars)

Identification code 69–8191–0–7–401	FY 1992 actual	FY 1993 estimate	FY 1994 estimate
Direct obligations:			
25.1 Consulting services	4,250	...	...
41.0 Grants, subsidies, and contributions	1,487,127	1,750,500	1,850,000
99.0 Subtotal, direct obligations	1,491,377	1,750,500	1,850,000
99.0 Reimbursable obligations	1,445	...	...
99.9 Total obligations	1,492,822	1,750,500	1,850,000

U.S. Department of
Transportation

BUDGET ESTIMATES

FISCAL YEAR 1994

OFFICE OF THE SECRETARY OF TRANSPORTATION

SUBMITTED FOR USE OF
THE COMMITTEES ON APPROPRIATIONS

FY 1993 BUDGET ESTIMATES
DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

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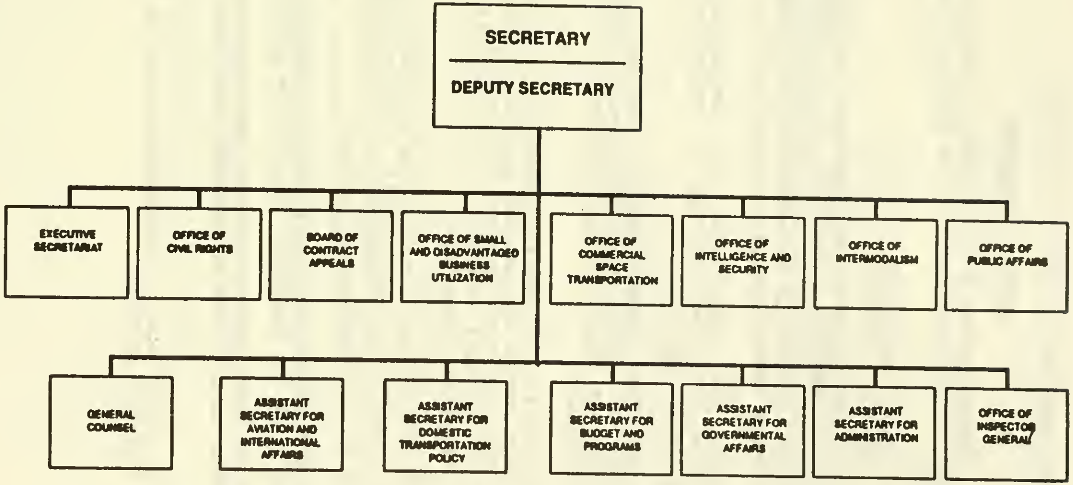
U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY ORGANIZATION


SECRETARY
DEPUTY SECRETARY
EXECUTIVE SECRETARIAT
OFFICE OF CIVIL RIGHTS
BOARD OF CONTRACT APPEALS
OFFICE OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION
OFFICE OF COMMERCIAL SPACE TRANSPORTATION
OFFICE OF INTELLIGENCE AND SECURITY
OFFICE OF INTERMODALISM
OFFICE OF PUBLIC AFFAIRS
GENERAL COUNSEL
ASSISTANT SECRETARY FOR AVIATION AND INTERNATIONAL AFFAIRS
ASSISTANT SECRETARY FOR DOMESTIC TRANSPORTATION POLICY
ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS
ASSISTANT SECRETARY FOR GOVERNMENTAL AFFAIRS
ASSISTANT SECRETARY FOR ADMINISTRATION
OFFICE OF INSPECTOR GENERAL

Proposed

OFFICE OF THE SECRETARY

SUMMARY STATEMENT

In FY 1994, appropriations and obligation limitations (excluding Working Capital Fund) requested for the Office of the Secretary is $262,910,000.

The FY 1994 request includes:

- $65,782,000 for Salaries and Expenses, including $59,365,000 to fund the general management and administration of the Department and $6,417,000 for continued development of the Department's Integrated Personnel/Payroll System (IPPS). This request funds annualization of fiscal year 1993 pay increases.
- $5,190,000 for Operations and Research-OCST to fund anticipated increased activity in support of the licensing program and policy analysis.
- $3,033,000 for Transportation Planning, Research, and Development to support staff and research associated with the development of transportation regulatory, international and economic policy.
- $149,605,000 for GSA Rental Payments to fund headquarters and field space rental and related services, of which $40,551,000 is derived from trust funds. Additionally, $17,524,000 is proposed to be paid from Federal-Aid Highways "Limitation on General Operating Expenses".
- $700,000 for the MBRC Loan Program to continue the short term lending program to assist small, minority and disadvantaged businesses, of which $300,000 will cover loan losses and $400,000 is for administrative costs.
- $38,600,000 obligation limitation for Payments to Air Carriers in support of the Essential Air Service program.
- $93,108,000 obligation limitation for the Working Capital fund to finance centralized Departmental services.

As in FY 1993, the Office of Intermodalism will be funded from the Federal-Aid Highways program.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SUMMARY OF FUNDING
($ in Thousands)

Appropriation	FY 1992 Actual Obligations	FY 1993 Enacted	FY 1994 Est.	Difference
Salaries & Expenses	62,658	62,334 1/	65,782	+ 3,448
Operations & Research-OCST	4,308	4,275 2/	5,190	+ 915
OCST-User Fees	200			
Transportation Planning, Research, and Development	2,651	3,025 3/	3,033	+ 8
Payments to Air Carriers	35,227	38,600 4/	38,600 4/	+ 0
W.C.F. (Oblim. Lim.)	[73,474]	[93,000]	[93,108]	+ [108]
GSA Rental Payments 5/	111,970	130,000	149,605	+ 19,605
MBRC Loan Program 6/	---	700	700	+ -0-
TOTAL	216,814	238,934	262,910	+ 23,976

1/ Excludes $9.305 million MBRC unobligated carryover; and $1.498 million Systems Development unobligated carryover.

2/ Excludes $301 thousand OCST unobligated carryover.

3/ Excludes $955 thousand TPR&D unobligated carryover.

4/ Obligation limitation equal to contract authority in FY 1993 and FY 1994.

6/ Excludes $17.5 million to be paid to thes account in FY 1994 for FHWA rent from Federal-aid Highways LGOE.

5/ Included in Salaries & Expenses in FY 1992.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

STAFFING SUMMARY
AUTHORIZED POSITIONS AND FTE EMPLOYMENT

	FY 1992 ACTUAL				FY 1993 ENACTED				FY 1993 ESTIMATE				FY 1994 REQUEST			
		FTE				FTE				FTE				FTE		
	POS	CEILING	NON-C	TOTAL	POS	CEILING	NON-C	TOTAL	POS	CEILING	NON-C	TOTAL	POS	CEILING	NON-C	TOTAL
SALARIES & EXPENSES	713	638	11	649	673	640	16	656	666	633	13	646	662	638	12	650
REIMBURSABLE	36	35	6	41	60	62	11	73	60	62	11	73	48	56	9	65
OPS & RES (OCST)	24	25		25	24	23	1	24	24	23	0	23	27	26	0	26
TPR&D (POLICY)	18	24	4	28	18	18	4	22	18	18	4	22	18	18	4	22
WORKING CAPITAL FUND	331	334	9	343	334	341	10	351	334	341	10	351	332	336	4	340
SUB TOTAL OST	1,122	1,056	30	1,086	1,109	1,084	42	1,126	1,102	1,077	38	1,115	1,087	1,074	29	1,103

94CONG

DISTRIBUTION OF OST BUDGET AUTHORITY
(Dollars in thousands)

07-Apr-93	FY 1992 ACTUAL						FY 1993 ESTIMATE						FY 1994 PRESIDENT'S BUDGET					
SALARIES & EXPENSES	PC&B$	TVL$	OTHER$	TOT$	POS	FTE	PC&B$	TVL$	OTHER$	TOT$	POS	FTE	PC&B$	TVL$	OTHER$	TOT$	POS	FTE
GENERAL COUNSEL	6,808	57	100	6,965	100	102	6,925	60	15	7,000	100	101	7,793	60	14	7,867	100	101
P-(EAS In FY 92) DOMESTIC	1,531	19	12	1,562	21	24	2,327	24	7	2,358	39	35	2,379	24	7	2,410	39	35
(POLICY In FY 92)AVIATION-INTERNATIONAL	8,640	97	22	8,759	143	132	7,796	91	33	7,920	125	113	7,969	85	28	8,082	125	113
BUDGET & PROGRAM	2,653	13	36	2,702	38	35	2,760	25	40	2,825	37	35	2,761	25	40	2,826	37	35
GOVERNMENTAL AFFAIRS	2,001	18	1	2,020	43	37	2,300	10	10	2,320	40	39	2,206	18	1	2,225	38	36
ADMINISTRATION	11,658	77	12,241	23,976	183	187	13,450	75	14,075	27,600	199	198	13,544	90	13,938	27,572	190	198
SYSTEMS DEVELOPMENT	841	79	4,672	5,592	53	12	266	27	3,375	3,668	4	4	580	27	5,810	6,417	8	8
PUBLIC AFFAIRS	1,515	20	4	1,539	26	25	1,496	13	37	1,546	25	26	1,493	13	32	1,538	25	25
SECR OFCS	6,476	272	2,795	9,543	109	95	6,572	244	281	7,097	97	94	6,403	244	198	6,845	100	97
S-1 (SECR)	1,250	112	9	1,371	14	16	1,289	135	11	1,435	13	13	1,027	135	11	1,173	13	13
S-2 (DEP SEC)	407	18	0	425	10	8	377	40	10	427	7	7	440	40	1	481	8	8
S-10 (EXEC SEC)	986	2	0	988	21	21	960	1	4	965	20	20	942	1	4	947	20	20
S-20 (APP BD)	565	9	15	589	7	7	563	7	20	590	7	7	575	7	20	602	7	7
S-30 (CIV RGTS)	1,471	24	17	1,512	23	22	1,421	21	20	1,462	23	21	1,453	21	20	1,494	23	21
S-40 (OSDBU)	772	0	14	786	18	13	945	0	8	953	16	15	926	0	8	934	15	14
S-40 (MBRC)	0	24	2,632	2,656		0	0	0	0	0	0	0	0	0	0	0	0	0
S-60 (INTELL/SEC)	1,025	83	108	1,216	15	11	1,017	40	208	1,265	11	11	1,040	40	134	1,214	14	14
SUB-TOT S&E	42,123	652	19,883	62,658	713	649	43,892	569	17,873	62,334	666	648	45,128	566	20,068	65,762	662	650
REIMBURSABLE					38	41					60	73					48	65
OPS & RES (OCST)	1,638	98	2,572	4,308	24	25	1,385	60	2,830	4,275	24	23	1,927	80	3,183	5,190	27	26
USER FEES			[200]	[200]					[0]	[0]					[0]	[0]		
TPR&D (POLICY)	2,403	30	218	2,651	18	26	1,825	30	1,170	3,025	18	22	1,868	30	1,135	3,033	18	22
WORKING CAPITAL FUND				[73,474]	331	343				[93,000]	334	351				[93,108]	332	340
P. A. C.			35,227	35,227					38,600	38,600					38,600	38,600		
MBRC LOAN PROGRAM									700	700					700	700		
RENTAL PAYMENTS			65,842	65,842					80,953	80,953					109,054	109,054		
RENTAL PAYMENTS TRUST FUND			46,128	46,128					49,047	49,047					40,551	40,551		
SUB-TOTAL RENT			111,970	111,970					130,000	130,000					149,605	149,605		
SUB TOTAL OST	46,164	760	169,870	216,814	1,122	1,086	47,102	659	191,173	238,934	1,102	1,116	48,923	696	213,291	262,810	1,067	1,103

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SALARIES AND EXPENSES

[IMMEDIATE OFFICE OF THE SECRETARY]

[For necessary expenses of the Immediate Office of the Secretary, $1,435,000.]

[IMMEDIATE OFFICE OF THE DEPUTY SECRETARY]

[For necessary expenses of the Immediate Office of the Deputy Secretary, $427,000.]

[OFFICE OF THE GENERAL COUNSEL]

[For necessary expenses of the Office of the General Counsel, $7,000,000.]

[OFFICE OF THE ASSISTANT SECRETARY FOR POLICY AND INTERNATIONAL AFFAIRS]

[For necessary expenses of the Office of the Assistant Secretary for Policy and International Affairs, $8,733,000.]

[OFFICE OF THE ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS]

[For necessary expenses of the Office of the Assistant Secretary for Budget and Programs, $2,825,000, including not to exceed $40,000 for allocation within the Department of official reception and representation expenses as the Secretary may determine.]

[OFFICE OF THE ASSISTANT SECRETARY FOR GOVERNMENTAL AFFAIRS]

[For necessary expenses of the Office of the Assistant Secretary for Governmental Affairs, $2,320,000.]

[OFFICE OF THE ASSISTANT SECRETARY FOR ADMINISTRATION]

[For necessary expenses of the Office of the Assistant Secretary for Administration, $31,268,000, of which $3,668,000 shall remain available until expended.]

[OFFICE OF THE ASSISTANT SECRETARY FOR PUBLIC AFFAIRS]

[For necessary expenses of the Office of the Assistant Secretary for Public Affairs, $1,546,000.]

[EXECUTIVE SECRETARIAT]

[For necessary expenses of the Executive Secretariat, $965,000.]

[CONTRACT APPEALS BOARD]

[For necessary expenses of the Contract Appeals Board, $590,000.]

[OFFICE OF CIVIL RIGHTS]

[For necessary expenses of the Office of Civil Rights, $1,462,000.]

[OFFICE OF ESSENTIAL AIR SERVICE]

[For necessary expenses of the Office of Essential Air Service, $1,545,000.]

[OFFICE OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION]

For necessary expenses of the [Office of Small and Disadvantaged Business Utilization, $953,000.] *Office of the Secretary, $65,782,000; of which $5,810,000 shall remain available until expended; and of which not to exceed $40,000 shall be available as the Secretary may determine for allocation within the Department for official reception and representation expenses*: *Provided,* That, notwithstanding any other provision of law, funds available for the purposes of the Minority Business Resource Center in this or any other Act may be used for business opportunities related to any mode of transportation.

[OFFICE OF INTELLIGENCE AND SECURITY]

[For necessary expenses of the Office of Intelligence and Security, $1,265,000.] *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SALARIES AND EXPENSES

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69–0102–0–1–407		1992 actual	1993 est.	1994 est.
Program by activities				
Direct program:				
00.01	General administration	54410	58666	59365
00.02	Minority business resource center	2656	9305	......
00.03	Systems development	5592	5166	6417
00.91	Total direct program	62658	73137	65782
01.01	Reimbursable program	13855	18152	18860
10.00	Total obligations	76513	91289	84642
	Financing			
17.00	Recovery of prior year obligations	–4537	......	......
21.40	Unobligated balance, start of year	–5592	–10803	......
24.40	Unobligated balance available, end of year	10803	......	......
25.00	Unobligated balance expiring	628	......	......
39.00	Budget authority (gross)	77816	80486	84642
Budget authority:				
	Current:			
40.00	Appropriation	63961	62334	65782
	Permanent:			
68.00	Spending authority from offsetting collections (new)	13855	18152	18860
Relation of obligations to outlays:				
71.00	Total obligations	76513	91289	84642
72.40	Obligated balance, start of year	7929	9,852	6,233
74.40	Obligated balance, end of year	–9852	–6233	–6578
77.00	Adjustments in expired accounts	144	......	......
78.00	Adjustments in unexpired accounts	–4537	......	......
87.00	Outlays (gross)	70198	94907	84297
Adjustments to budget authority and outlays:				
88.00	Deductions for offsetting collections: Federal funds	–13855	–18152	–18860
89.00	Budget authority (net)	63961	62334	65782
90.00	Outlays (net)	56343	76755	65437

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SALARIES AND EXPENSES
(MINORITY BUSINESS RESOURCE CENTER)

STATUS OF DIRECT LOANS (in thousands of dollars)

Identification code 69–0102–0–1–407		1992 actual	1993 est.	1994 est.
	Cumulative balance of direct loans outstanding:			
1210	Outstanding, start of year	12835	7684	7684
	Write–offs for default:			
1263	Direct loans (–)	–752		
1264	Other adjustments, net (–)	–4399		
1290	Outstanding, end of year	7684	7684	7684

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SALARIES AND EXPENSES

PROGRAM AND PERFORMANCE

General administration.--This appropriation finances the costs of policy development and central supervisory and coordinating functions necessary for the overall planning and direction of the Department. It covers the immediate secretarial offices as well as those of the assistant secretaries and the general counsel.

Systems development.--This activity includes funds for systems development of the departmentwide integrated personnel and payroll system (IPPS) and other management systems.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SALARIES AND EXPENSES

OBJECT CLASSIFICATION (in thousands of dollars)

Identification Code 69–0102–0–1–407		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full–time permanent	32,111	33,788	34,884
11.3	Other than full–time permanent	3,000	3,570	3,356
11.5	Other personnel compensation	877	694	776
11.8	Special personal services payments	416	468	223
11.9	Total personnel compensation	36,404	38,520	39,239
12.1	Civilian personnel benefits	5,719	5,522	5,889
21.0	Travel and transportation of persons	652	549	586
22.0	Transportation of things	52	78	51
23.3	Communications, utilities, and miscellaneous charges	628	623	232
24.0	Printing and production	200	200	130
25.2	Other services	15,454	27,037	19,226
26.0	Supplies and materials	519	260	186
31.0	Equipment	1,178	348	243
41.0	Grants, subsidies, and contributions	1,852	–0–	–0–
99.0	Subtotal, direct obligations	62,658	73,137	65,782
99.0	Reimbursable obligations	13,855	18,152	18,860
99.9	Total obligations	76,513	91,289	84,642

FY 1993 includes unobligated ($10,803,220).

Personnel Summary

Direct: Total compensable workyears:	654	651	655
Full–time equivalent employment	649	646	650
Full–time equivalent of overtime and holiday hours	5	5	5
Reimbursable: Total compensable workyears:			
Full–time equivalent employment	41	73	65

SALARIES AND EXPENSES

SUMMARY STATEMENT

The Salaries and Expenses appropriation finances all activities associated with the central Departmental management role of the Office of the Secretary of Transportation, including the formulation and direction of national transportation policies and programs carried out within the Office of the Secretary. The FY 1994 request reflects a reorganization of the Office of Policy and International Affairs into two assistant secretaries, one for aviation and international issues and one for transportation policy. The Office of the Assistant Secretary for Public Affairs will become the Director of Public Affairs. Proposed staff reductions reflect efforts to streamline operations and will be achieved through attrition.

For FY 1994 the request includes funds to strengthen management oversight in the areas of information technology, acquisition and grants management and financial management. Emphasis will also be placed on the continued development of the department-wide integrated personnel and payroll system (IPPS). The Office of Intermodalism will continue to be funded from the Federal-aid Highway program, as it was in FY 1993.

The appropriation language requested for FY 1994 consolidates the office-by-office funding for the Salaries and Expenses appropriation into a single account. An appropriation of $65,782,000 is requested for fiscal year 1994, including $6,417,000 for Systems Development. This is an increase of $3.4 million over the FY 1993 enacted level. Growth is due to annualization of FY 1993 pay increases and continued development of department-wide automated systems. The budget also proposes staff increases offset with staff reductions highlighted below:

o Funds 650 FTE versus 656 FTE enacted in FY 1993, a net reduction of 6 FTE. Staff increases of 16 FTE include: 8 FTE in Administration for annualization of FY 1993 enacted staff levels; 4 FTE for systems development that are transferred from the Salaries and Expenses program; 1 FTE for the Deputy Secretary in support of Departmental affairs; and 3 FTE for the Office of Intelligence and Security, a technical adjustment for the conversion of 3 Coast Guard positions to direct hires. A decrease of 22 FTE as follows: -2 FTE in Budget and Programs; -4 FTE in Governmental Affairs; -9 FTE in Administration; -2 FTE in Public Affairs; -1 FTE in the Immediate Office of the Secretary; -1 FTE in the Executive Secretariat; -2 FTE in Civil Rights; and -1 FTE in the Office of Small and Disadvantaged Business Utilization.

o Additional staff reductions are proposed in the reimbursable program: from 73 FTE in the FY 1993 enacted budget to 65 FTE in the FY 1994 request, a reduction of 8 FTE.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SALARIES AND EXPENSES

SUMMARY OF FUNDING (BA)
(in thousands of dollars)

GENERAL ADMINISTRATION	FY 1992 Obligated	FY 1993 Enacted	FY 1994 Estimate
Immediate Office of the Secretary	1,371	1,435	1,173
Immediate Office of the Deputy Secretary	425	550	481
General Counsel	6,965	7,000	7,867
Policy and International Affairs	6,759		
Office of Essential Air Service	1,562		
Policy Domestic		2,358	2,410
Policy Aviation and International Affairs		7,920	8,082
Budget and Programs	2,666	2,785	2,786
Reception and Representation Allowance	36	40	40
Governmental Affairs	2,020	2,320	2,225
Administration	29,568	31,268	33,989
Systems Development	[5,592]	[3,668]	[6,417]
Public Affairs	1,539	1,546	1,538
Executive Secretariat	988	965	947
Contract Appeals Board	589	590	602
Office of Civil Rights	1,512	1,462	1,494
Office of Small and Disadvantaged Business Utilization	786	953	934
Office of Intelligence and Security	1,216	1,265	1,214
SUB-TOTAL, General Administration	60,002	62,334	65,782
MINORITY BUSINESS RESOURCE CENTER	2,656	---	---
TOTAL, Salaries and Expenses	62,658	62,334 1/	65,782

1/ Excludes unobligated carryover of $10,803,220.

SALARIES AND EXPENSES

GENERAL COUNSEL (C)

($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from FY 1993 Enacted
Personnel Compensation and Benefits	$6,808	$6,925	$7,793	+ $868
Travel	57	60	60	-0-
Other Costs	100	15	14	-1
Total	$6,969	$7,000	$7,867	+ $867

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Permanent Positions	100	100	100	100	-0-
Full Time Equivalents	102	101	101	101	-0-
Ceiling	99	98	98	98	-0-
Non-Ceiling	3	3	3	3	-0-

The General Counsel is the chief legal officer of the Department of Transportation and the final authority within the Department on all legal questions. The General Counsel's office provides legal services to the Office of the Secretary (including the conduct of aviation regulatory proceedings), coordinates and reviews the legal work of the Chief Counsels' offices of the operating administrations, and generally performs the full range of legal services involved in administering an executive department with national and international responsibilities.

Change in Resources

The requested increase of $868,000 in personnel compensation and benefits is required for annualization of FY 1993 base pay increases including $543,000 required to fully fund the FY 1993 enacted level. The reduction of $1,000 in 'Other Costs' reflects anticipated activity in this area in FY 1994.

Justification of Program

The above requirements are necessary to carry out the mission of the Office of the General Counsel. additionally, legal issues involving major Departmental initiatives (implementation of the Intermodal Surface Transportation Efficiency Act of 1991 requirements; development of final regulations to implement the transportation employee alcohol and drug testing requirements of the Omnibus Transportation Employees Testing Act of 1991; review and analysis of provisions of the North American Free Trade Agreement) resulted in heavy workload increases for the office. Emphasis continues to be placed on implementing various transportation initiatives by providing the highest quality legal work to the Secretary and the Department.

SALARIES AND EXPENSES

GENERAL COUNSEL (C)

PERMANENT POSITIONS

	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Immediate Office of the General Counsel				
Professional	5	5	5	---
Non-Professional	4	4	4	---
Total	9	9	9	---
Office of Environmental, Civil Rights and General Law				
Professional	17	17	17	---
Non-Professional	5	5	5	---
Total	22	22	22	---
Office of International Law				
Professional	12	12	12	---
Non-Professional	2	2	2	---
Total	14	14	14	---
Office of Litigation				
Professional	9	9	9	---
Non-Professional	2	2	2	---
Total	11	11	11	---
Office of Legislation				
Professional	7	7	7	---
Non-Professional	2	2	2	---
Total	9	9	9	---
Office of Regulation and Enforcement				
Professional	7	7	7	---
Non-Professional	4	4	4	---
Total	11	11	11	---

PERMANENT POSITIONS

	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Documentary Services				
Professional	5	5	5	---
Non-Professional	6	6	6	---
Total	11	11	11	---
Board for Correction of Military Records				
Professional	2	2	2	---
Non-Professional	1	1	1	---
Total	3	3	3	---
Office of Aviation Enforcement and Proceedings				
Professional	8	8	8	---
Non-Professional	2	2	2	---
Total	10	10	10	---
TOTAL - General Counsel				
Professional	72	72	72	---
Non-Professional	28	28	28	---
TOTAL	100	100	100	---

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR DOMESTIC TRANSPORTATION POLICY

($ in thousands)

	FY 1993 Enacted	FY 1994 Estimate	Difference from FY 1993 Enacted
Personnel Compensation and Benefits.........	$2,327	$2,379	+ $52
Travel.................	24	24	0
Other Costs............	7	7	0
Total..................	$2,358	$2,410	+ $52

Staffing

	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference FY 1993 Enacted
Permanent Positions:	39	39	39	0
Full-Time Equivalents: Ceiling	35	35	35	0
Non-Ceiling	0	0	0	0

The Assistant Secretary for Domestic Transportation Policy is the chief domestic policy officer of the Department and is responsible to the Secretary for analysis, development, articulation, and review of policies and plans for domestic transportation.

Change in Resources

For annualization of FY 1993 pay raise an increase of $52,000 above amounts derived from the "Office of the Assistant Secretary for Policy and International Affairs" in the Department of Transportation and Related Agencies Appropriations Act of 1993. The FY 1993 reorganization of the Policy Office created the Office of the Assistant Secretary for Domestic Transportation Policy. This office is responsible for industry operations, safety, economic studies, environmental impacts, regulatory review and planning. Aviation and international issues, including Essential Air Service (EAS), are the responsibility of the new Assistant Secretary for Aviation and International Affairs.

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR DOMESTIC TRANSPORTATION POLICY

PERMANENT POSITION

	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	DIFFERENCE from FY 1993
Office of the Assistant Secretary				
Professional	5	5	5	--
Non-Professional	4	4	4	--
Total	9	9	9	--
Office of Environment & Safety				
Professional	10	10	10	--
Non-Professional	5	5	5	--
Total	15	15	15	--
Office of Economics				
Professional	10	10	10	--
Non-Professional	5	5	5	--
Total	15	15	15	--
Total Assistant Secretary for Domestic Transportation Policy				
Professional	25	25	25	--
Non-Professional	14	14	14	--
Total	39	39	39	--

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR AVIATION AND INTERNATIONAL AFFAIRS

($ in thousands)

	FY 1993 Enacted	FY 1994 Estimate	Difference from FY 1993 Enacted
Personnel Compensation and Benefits..........	$7,796	$7,969	+$173
Travel.................	91	85	- 6
Other Costs............	33	28	- 5
Total..................	$7,920	$8,082	+$162

Staffing

	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Permanent Positions:	125	125	125	0
Full-time Equivalents: Ceiling	113	113	113	0
Non-Ceiling	0	0	0	0

The Assistant Secretary for Aviation and International Affairs is responsible for administering the economic regulatory functions regarding the airline industry and provides Departmental leadership and coordination on international transportation policy issues relating to maritime, trade, technical assistance and cooperation programs. As overseer of airline economic regulations, the Assistant Secretary is responsible for international aviation programs, the essential air service program, airline fitness and licensing, acquisitions, international route awards and special investigations such as airline delays and CRS.

Changes in Resources

For necessary expenses of the Office of the Assistant Secretary for Aviation and International Affairs an increase of $173,000 above amounts derived from the "Office of the Assistant Secretary for Policy and International Affairs and the Office of Essential Air Service (EAS)" in the Department of Transportation and Related Agencies Appropriations Act of 1993. The increase funds provides annualization of the FY 1993 pay increases.

This request reflects a reorganization of the Policy Office. The Office of the Assistant Secretary for Aviation and International Affairs, including the Office of Essential Air Service, is being separated from domestic transportation. This office provides for international aviations programs, airline licensing, airline consumer protection, special investigations such as airline delays, subsidy payments to air carriers, issues relating to maritime, trade technical regulations.

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR AVIATION
AND INTERNATIONAL AFFAIRS

PERMANENT POSITION

	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	DIFFERENCE from FY 1993
Office of the Assistant Secretary				
Professional	7	7	7	--
Non-Professional	4	4	4	--
Total	11	11	11	--
Office of Int'l Trans. & Trade				
Professional	23	23	23	--
Non-Professional	5	5	5	--
Total	28	28	28	--
Office of Int'l Aviation				
Professional	36	36	36	--
Non-Professional	6	6	6	--
Total	42	42	42	--
Office of Aviation Analysis				
Professional	37	37	37	--
Non-Professional	7	7	7	--
Total	44	44	44	--
Total Assistant Secretary for Aviation & International Affairs				
Professional	103	103	103	--
Non-Professional	22	22	22	--
Total	125	125	125	--

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS (B)

($ in thousands)

	FY 1992 Actual Obligations	FY 1993 Enacted	FY 1994 Estimate	Diff.
Personnel Compensation and Benefits............	$2,653	$2,760	$2,761	+$ 1
Travel....................	13	25	25	-0-
Reception & Representation	36	40	40	-0-
	$2,702	$2,825	$2,826	+$ 1

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Diff from Enacted
Permanent Positions:	38	38	37	37	- 1
Full-time Equivalent:	35	37	35	35	- 2
Ceiling:	35	36	35	35	- 1
Non-Ceiling:	0	1	0	0	- 1

The Assistant Secretary for Budget and Programs is the principal staff advisor to the Secretary on the development, review, and presentation of the Department's budget resource requirements, and on the evaluation and oversight of the Department's programs. The primary responsibilities of this office are to ensure the effective preparation and presentation of sound and adequate budget estimates for the Department, ensure the consistency of the Department's budget execution with the action and advice of the Congress and the Office of Management and Budget, evaluate the program proposals for consistency with the Secretary's stated objectives, advise the Secretary of program and legislative changes necessary to improve program effectiveness, and coordinate strategic planning activities within DOT.

Changes in Resources

A net increase of $1,000 in personnel costs is required to fund annualization of FY 1993 pay increases offset by a reduction of 1 position and 2 FTE. The staff reduction reflects the proposed elimination of a special assistant and a non-ceiling position.

No increase in funding is requested for travel or reception and representation.

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS (B)

	PERMANENT POSITIONS			
	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Diff
Office of the Assistant Secretary				
Professional	3	2	2	- 1
Nonprofessional	2	2	2	---
Total	5	4	4	- 1
Office of Programs and Evaluation				
Professional	13	13	13	---
Nonprofessional	3	3	3	---
Total	16	16	16	---
Office of Budget				
Professional	14	14	14	---
Nonprofessional	3	3	3	---
Total	17	17	17	---
Total - Assistant Secretary for Budget and Programs				
Professional	29	29	29	---
Nonprofessional	8	8	8	---
Total	38	37	37	---

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR GOVERNMENTAL AFFAIRS (I)

($ in Thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Dif. from FY 93 Enc.
Personnel Compensation and Benefits........	$2,001	$2,300	$2,206	-$94
Travel................	18	10	18	+8
Other Costs...........	1	10	1	-9
Total	$2,020	$2,320	$2,225	-$95

Staffing

	FY 92 Actual	FY 93 Enacted	FY 93 Estimate	FY 94 Estimate	Dif. from FY 93 Enc.
Permanent Positions...	43	43	39	39	-4
Full-Time Equivalents:	37	42	38	38	-4
Ceiling	36	41	37	37	-4
Non-Ceiling	1	1	1	1	0

The Assistant Secretary for Governmental Affairs is the principal advisor to the Secretary on all Congressional and Intergovernmental activities and on all of the Department legislative initiatives and other relationships with Members of the Congress; promotes effective communication with other federal agencies and regional Department officials, and with state and local governments and national organizations for development of Departmental programs; and ensures that consumer preferences, awareness, and needs are brought into the decision-making process.

Changes in Resources

The FY 1994 budget estimate requests 38 fully funded FTEs and provides funding for annualization of the 1993 pay increases. In the interest of streamlining, the budget proposes reduction of -4 FTEs to be accomplished through attrition. The +$8,000 increase in travel requirements is based on actual 1992 expenditures and is necessary to support the Secretary, especially in Intergovernmental activities.

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR GOVERNMENTAL AFFAIRS, (I)

	PERMANENT POSITIONS			
	FY 93 Enacted	FY 93 Estimate	FY 94	Dif. from FY 93 Enc.
Office of the Assistant Secretary				
Professional	6	6	5	-1
Non-Professional	2	2	2	---
Total	8	8	7	-1
Office of Congressional Affairs				
Professional	10	10	9	-1
Non-Professional	3	3	3	---
Total	13	13	12	-1
Office of Intergovernmental and Consumer Affairs				
Professional	19	19	17	-2
Non-Professional	3	3	3	---
Total	22	22	20	-2
Total-Assistant Secretary for Governmental Affairs				
Professional	35	35	31	-4
Non-Professional	8	8	8	---
Total	43	43	39	-4

SALARIES AND EXPENSES

ASSISTANT SECRETARY FOR ADMINISTRATION (M)
($ IN THOUSANDS)

ANNUAL CONTINUING OPERATIONS	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference From FY 1993 Enacted
Personnel Compensation and Benefits	$11,658	$13,450	$13,544	$ +94
Travel	77	75	90	+15
Other Costs	12,241	14,075	13,938	-137
Subtotal, Annual	**$23,976**	**$27,600**	**$27,572**	**$ -28**
NO-YEAR SYSTEMS DEVELOPMENT				
Personnel Compensation and Benefits	$ 841	$ 266	$ 580	$ +314
Travel	79	27	27	--
Other Costs	4,672	3,375	5,810	+2,435
Subtotal, No-Year	**$ 5,592**	**$ 3,668**	**$ 6,417**	**$+2,749**
TOTAL	**$29,568**	**$31,268**	**$33,989**	**$+2,721**

ANNUAL CONTINUING OPERATIONS	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference From FY 1993 Enacted
Permanent Positions	183	199	199	190	-9
Full-time Equivalents:	187	199	199	198	-1
Ceiling	182	193	193	192	-1
Non-Ceiling	5	6	6	6	
NO-YEAR SYSTEMS DEVELOPMENT					
Permanent Positions	53	4	4	8	+4
Full-time Equivalents:	12	4	4	8	+4
Ceiling	12	4	4	8	+4
Non-Ceiling	--	--	--	--	--

The Assistant Secretary for Administration, the principal advisor to the Secretary on departmental administrative management matters, is responsible for personnel and training, management policy, employment ceiling control system, automated systems policy, administrative operations, real and personal property management, acquisition management, grants management, internal departmental financial systems, and automatic data processing (ADP) facilities and services.

Major program activities include: developing administrative management policies and programs, monitoring and assessing departmental organization and manpower distribution, evaluating the quality of administrative management programs in the various administrations, operating an executive personnel management program, providing staff advice to the Secretary on major systems acquisitions and planning, developing and administering the DOT Headquarters' ADP operations, including computer service operations. Major direct administrative services to the Office of the Secretary (OST) include such areas as accounting, procurement, personnel management, and ADP operations.

CHANGES IN RESOURCES - ANNUAL CONTINUING OPERATIONS

The FY 1994 request reflects a net decrease of nine positions, one FTE and $28,000 from the FY 1993 enacted level. For Personnel Compensation and Benefits a net increase of $94,000 is requested. Annualization of FY 1993 programs will require eight FTEs and $691,000 to fund within grade increases ($4,000), the January 1993 pay increase ($125,000), and full-year funding for positions approved in FY 1993 (eight FTEs and $562,000). An additional $50,000 is requested for FY 1994 within grade increases. Offsetting these increases is the reduction of $647,000 for nine positions and FTEs.

For travel an increase of $15,000 is required including $2,000 for inflation and $13,000 to provide additional trips to field locations in support of procurement management reviews, information resource management oversight and review, and financial management improvement activities.

The other services decrease of $137,000 represents the effect of nonrecurring FY 1993 projects and management savings ($1,727,600) offset by higher costs for contractual services as a result of inflationary factors ($874,600), and new program initiatives associated primarily with enhancements in procurement, personnel and financial management improvement activities ($716,000). Following is a breakdown and explanation of the new program increases reflected in this budget request.

OFFICE OF PERSONNEL

Automated Workers' Compensation Program $8,000 - Funds are required to support the implementation of an automated system to track the costs associated with the Worker's Compensation Program. The Department of Transportation's (DOT) most recent Workers Compensation Bill for FY 1992 totalled $87 million. This system will provide managers and supervisors the data necessary to develop plans and procedures to reduce costs and help control the addition of new cases to the Worker's Compensation rolls. Failure to fund this program will lead to continued excess costs and expenditures in an area that has seen increased pressure from the Department of Labor for agencies to implement cost preventive procedures and develop programs to curtail major dollar outlays.

OFFICE OF INFORMATION RESOURCE MANAGEMENT

Travel for IRM Reviews $7,000 - This funding will allow staff to conduct reviews at field locations where they will evaluate records management and ensure that DOT is in compliance with General Services Administration (GSA) and National Archives and Records Administration (NARA) regulations. GSA previously criticized the Department for not having a functioning oversight review program to evaluate IRM activities. Failure to conduct such reviews at field locations would weaken the Department's ability to continue the IRM review function and expose the Department to continuing criticism for non-compliance with laws and regulations pertaining to information resource management.

Telecommunications $52,000 - DOT Headquarters operating administrations have their own disparate information networks. These networks do not allow for the flow of information across organizational boundaries. This increase will fund the development of a plan to integrate the existing networks while preserving the investments already made. The plan will also include principles for the ownership, control, and sharing of information.

OFFICE OF ADMINISTRATIVE SERVICES AND PROPERTY MANAGEMENT

Office Equipment $61,000 - The Office of Licensing Programs, Office of Commercial Space Transportation, requires $12,000 for purchase of a Lektriever filing system. The Lektriever is a space efficient way of filing and will allow location of safety reference documents in the office, as opposed to keeping them under lock and key in the remote and nearly inaccessible rooftop storage area of the building. The beneficiaries of moving the reference documents will be the engineers and others who are required to do research and analysis in the expanding field of commercial space transportation safety. The reference material needed to conduct the safety research will be on hand and will be used more often than the situation currently allows.

The remaining $49,000 is required for administrative office equipment and conference furniture. Much of OST's equipment is aged and has reached functional obsolescence. In recent years, equipment funds have been used to meet immediate needs (i.e., only replaced when broken).

OFFICE OF ACQUISITION AND GRANT MANAGEMENT

TSARC Technical Support $52,000 - DOT's conduct of major acquisitions has come under increased scrutiny from the Office of the Inspector General, the Office of Management Budget, the United States Government Accounting Office, and the House Appropriations Subcommittee.

Increased travel funding of $2,000 is required to support our review of major acquisitions. To improve OST's oversight and decision-making capability, analysts should attend program reviews at contractor plants and planning meetings at regional locations. The lack of requested travel funds would inhibit independent OST review, a recurring congressional criticism.

Oversight of major acquisitions is accomplished through the Transportation Systems Acquisition Review Council (TSARC) evaluation of the progress of major acquisitions at key decision points and through approval of new programs. TSARC will be evaluating test results of complex major systems such as air traffic control communications systems or Coast Guard buoy tenders. TSARC decisions will be the basis for the commitment to full scale development or production and will determine how the Department's scarce resources are allocated. As budgets grow tighter and various programs compete for the same dollars, decisions made by TSARC on which programs should proceed will become more and more vital. It is essential to have funds available to obtain required technical expertise to assist TSARC in their responsibilities. This request of $50,000 would cover four to six requests for assistance depending on the scope of the request.

Procurement Professionalism Training $55,000 - The Office of Federal Procurement Policy (OFPP) has established a governmentwide program of skills training for procurement professionals under section 16 of the OFPP Act (41 USC 414 (4)). In order to comply with this Act, we plan to offer on-the-job training, workshops, and a procurement conference covering relevant topical areas. To do otherwise would run the risk of vulnerabilities in OST oversight.

OFFICE OF FINANCIAL MANAGEMENT

Financial Management Improvement Activities $490,000 - These funds will be used to:

Conduct Analyses of User Requirements ($190,000). Contract assistance will be utilized to identify and prioritize data and information requirements for financial systems enhancements. The GAO has recently issued a report which suggests that Departmental Accounting and Financial Information System (DAFIS) must be enhanced to provide more financial information. This contractor assistance will help in the identification of specific information enhancements.

Update and Develop Cost Accounting Standards ($250,000). Contractor support is necessary to update and develop cost accounting standards. A survey of the Department's existing cost accounting and overhead procedures will be conducted followed by recommendations for specific changes to existing systems, procedures, and documentation. The contractor will also develop the training requirements for implementation of new accounting standards.

Conduct Financial Analyses ($50,000). Contractor assistance is required to develop the design and approach for analyzing the integrity and accuracy of financial data contained in the Department's accounting systems. Contractors will conduct analyses of financial data and enable verification of the consistency and reasonableness of financial information provided to external and internal users. It is essential that decision-makers at all levels have accurate and meaningful financial data on which to base resource allocation and management decisions.

On-site Financial Management Activities $4,000 - This increase will fund field travel related to on-site visits to field accounting offices to disseminate new audited financial statement requirements and validate conformance of these statements with established accounting standards.

ASSISTANT SECRETARY FOR ADMINISTRATION 4/7/93
SALARIES AND EXPENSES - DIRECT

OBJECT CLASS	FY 1993 ENACTED	FY 1994 ESTIMATE	DIFFERENCE FROM ENACTED
TRANSPORTATION OF THINGS	78	51	(27)
COMMUNICATIONS & UTILITIES	623	232	(391)
PRINTING AND REPRODUCTION	200	130	(70)
CONTRACTUAL SERVICES	**12,606**	**12,608**	**2**
SUPPLIES AND MATERIALS	256	177	(79)
EQUIPMENT	252	210	(42)
TOTAL, OTHER SERVICES	$14,015	$13,408	($607)

CONTRACTUAL SERVICES			
Payments to WCF	**9,246**	**9,982**	**736**
Payroll/PMIS	158	163	5
Trng/Exec. Development	137	177	40
Alcohol/Drug Abuse	39	22	(17)
Workers Compensation Program		8	8
OIRM Security Cert. Review	22	22	0
OIRM Security Software	383	125	(258)
OIRM Security Awareness	2		(2)
Telecommunications		52	52
Automation Program	1,350	1,271	(79)
IRM Plan/Ovsight	100		(100)
OST Imaging Program	250		(250)
OIRM Evaluation	150		(150)
Mntc. and Repair	74	60	(14)
USCG Clinic	83	86	3
Building Alterations	108	60	(48)
Safety Mgmt. System	25	25	0
Miscellaneous Contracts	235	258	23
Environmental Auditing	150	150	0
Real Property Survey	19	20	1
Reporting Service	75	22	(53)
TSARC Technical Support		50	50
Procurement Professionalism		55	55
Security Investigations	60	80	20
FM Evaluations		450	450

PAYMENTS TO WCF			
CEIO	18	21	3
Imprest Fund	11	10	(1)
DAFIS	60	173	113
Unemployment Compensation	30	32	2
Accounting Services	567	757	190
Communications Services	1,118	1,067	(51)
Transportation Computer Center	2,934	3,259	325
Printing	1,130	1,142	12
Administrative Services	2,841	3,012	171
Security	537	509	(28)

NO YEAR SYSTEMS DEVELOPMENT

The FY 1994 budget request for financial systems development provides for the continued development of an Integrated Personnel/Payroll System (IPPS).

Fragmented, non-standard and aging financial systems remain a major management control vulnerability for the Department. Over 110 individual systems result in a high cost, high risk environment that does not, in most cases, meet basic information needs. To address this problem, and in support of the Chief Financial Officer (CFO), the Integrated Financial Management System (IFMS) program was established in FY 1994. Under the IFMS Program, the IPPS project will be pursued to address our most serious departmental management control needs.

High priority must be given to completing the integration and upgrade of DOT's personnel and payroll systems begun in FY 1992. Both systems are outdated and were reported as materially deficient in recent Federal Manager's Financial Integrity Act (FMFIA) reports to the President and Congress. The Department is vulnerable to system failure if corrective action is not completed.

INTEGRATED PERSONNEL/PAYROLL SYSTEM (IPPS)

IPPS is a major component of the Department's integrated financial management systems program. FY 1994 represents the third and most critical year of the planned multi-year development project to correct identified material deficiencies by integrating and improving existing systems capabilities. Since FY 1993 funding was significantly below the requested level, IPPS development and implementation will not be completed until FY 1996.

The Department's existing personnel and payroll systems support approximately 70,000 DOT and 340 National Transportation Safety Board civilian employees. Annually, the payroll system disburses $2.8 billion. Both systems were developed in the 1970's and were established as departmental systems in 1980. They are cumbersome, difficult to change, and lack the major features to provide adequate user support. Material deficiencies place the Department at serious risk and require a major system upgrade to correct. IPPS will correct material weaknesses; reduce management control vulnerabilities; and improve the quality, timeliness, and access to information. By-products include more effective departmentwide control of resources by increased management accessibility to personnel and accounting data; reduced automated data processing costs for personnel and payroll system maintenance; and the elimination of six non-standard systems (the existing personnel and payroll systems as well as four subsidiary systems). As required by the CFO Act, integration with other financial systems including the Department's core accounting system is also being accommodated.

CHANGES IN RESOURCES - NO YEAR SYSTEMS DEVELOPMENT

For IPPS, a total of $6,417,000 is requested, an increase of $2,749,000. This includes $9,000 for increased pay costs, i.e., annualization of FY 1993 costs for within-grade increases and the January 1993 pay raise as well as FY 1994 costs associated with within-grade increases. Program increases total $2,735,000 and four positions and FTEs.

Program Increases

Increases for this program include $305,000 for the four positions and associated FTE needed to provide program management and $2,435,000 for other services for development costs. Previously, the four program management FTE and associated costs were funded using Departmental Accounting and Financial Information System Development monies (reimbursable agreement with the Research and Special Programs Administration for DAFIS work at the Volpe National Transportation Systems Center). FY 1993 completes the systems development and implementation phase of the DAFIS project and resources will be redirected to IPPS implementation.

FY 1994 represents a critical development/implementation period for this project. We will complete the definition of the IPPS functional requirements; implement an integrated personnel and payroll data base; begin implementation of personnel reporting improvements; and develop automated payroll capabilities. Additionally, we will begin standardizing and integrating the functions of six non-standard personnel and payroll subsidiary systems to IPPS, leading to their eventual elimination. The new automated capabilities, integrated data base and elimination of non-standard systems will result in management efficiencies and cost savings by: eliminating redundant functions performed in both the personnel and payroll offices; improving access to better information; automating manual functions; and eliminating operating and maintenance costs of those non-standard systems. This funding increase includes contractor support of standardization efforts that will result in significant benefits to the personnel and financial communities.

Following are milestones for development and implementation of IPPS.

SYSTEMS DEVELOPMENT MILESTONES

INTEGRATED PERSONNEL/PAYROLL SYSTEM

MILESTONES AND KEY DECISION POINTS: Development and implementation will be completed within a multi-year timeframe. Each milestone will be a key decision point.

Project Startup and Planning	FY92/93
Define Functional Requirements	FY93/94
Develop and Implement Initial Personnel Capabilities	FY94
Develop and Implement Payroll Capabilities	FY94/96
Develop and Implement Remaining Personnel Capabilities	FY95/96

INTERIM PRODUCTS: Development and design activities will produce functional requirements; database design; system design; program specifications; source and executable code; and system test plans including expected results.

Documents supporting the implementation will include conversion plans, including the conversion of existing personnel and payroll system data to IPPS; site installation plans; training plans and materials; user manuals; and operations documentation, including backup and recovery procedures.

HOW MILESTONES WILL BE ACHIEVED: Development strategy adopted for the IPPS project is to integrate and improve the existing personnel and payroll systems.

The Department has established a standard methodology for managing and developing financial systems, a structured life cycle approach to systems development from planning and design through implementation and support. This standard methodology was an outgrowth of the DAFIS effort. DOT has since refined the methodology to conform to the development strategy for IPPS.

Project management in OST and the IPPS development team, located at the Mike Monroney Aeronautical Center (MMAC), will perform the life cycle development steps. A Project Management Plan is being developed that will be the primary operational document for the IPPS development project.

ASSISTANT SECRETARY FOR ADMINISTRATION

	PERMANENT POSITIONS		
	FY 1993 ESTIMATE	FY 1994 ESTIMATE	DIFFERENCE
Assistant Secretary			
Professional	6	5	-1
Non-Professional	3	3	0
Total	9	8	-1
Personnel			
Professional	47	45	-2
Non-Professional	8	8	0
Total	55	53	-2
Management Planning			
Professional	16	15	-1
Non-Professional	4	4	0
Total	20	19	-1
Information Resource Management			
Professional	29	27	-2
Non-Professional	4	4	0
Total	33	31	-2
Administrative Services and Property Management			
Professional	15	14	-1
Non-Professional	1	1	0
Total	16	15	-1
Hearings			
Professional	7	7	0
Non-Professional	3	3	0
Total	10	10	0
Acquisition and Grants Management			
Professional	30	29	-1
Non-Professional	5	5	0
Total	35	34	-1
Financial Management			
Professional	16	15	-1
Non-Professional	5	5	0
Total	21	20	-1
Administrative Systems Development			
Professional	3	6	3
Non-Professional	1	2	1
Total	4	8	4
TOTAL ASSISTANT SECRETARY FOR ADMINISTRATION			
Professional	169	163	-6
Non-Professional	34	35	1
Total	203	198	-5

SALARIES AND EXPENSES

OFFICE OF THE DIRECTOR OF PUBLIC AFFAIRS
($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from FY 1993 Enacted
Personnel Compensation and Benefits	$1,515	$1,496	$1,493	-$3
Travel	20	13	13	0
Other Costs	4	37	32	-$5
Total	$1,539	$1,546	$1,538	-$8

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Permanent Positions	26	26	25	25	-1
Full Time Equivalents:	25	27	26	25	-2
Ceiling	24	25	24	24	-1
Non-Ceiling	1	2	2	1	-1

The Director of Public Affairs is the principal advisor to the Secretary and other senior Departmental officials and news media on public affairs questions. The office issues news releases, articles, fact sheets, briefing materials, publications and audio-visual materials. It also provides information to the Secretary on opinions and reactions of the public and news media on programs and transportation issues. It arranges news conferences and provides speeches, talking points, and byline articles for the Secretary and other senior Department officials, and arranges the Secretary's media scheduling.

Changes in Resources

The FY-1994 request if $1,493 reflects a net decrease of $3,000, the reduction of 2 FTE's, and funds a staff level of 25 FTE's including annualization of FY 1993 pay increases.

Other Costs

The reduction of $5,000 for other costs reflects anticipated activity in this area.

SALARIES AND EXPENSES:

OFFICE OF THE DIRECTOR OF PUBLIC AFFAIRS 1/

	PERMANENT POSITIONS			
	FY-1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Director's Office				
Professional	6	6	6	--
Non-professional	2	2	2	--
Total	8	8	8	--
Speechwriting & Research				
Professional	2	2	2	--
Non-professional	1	1	1	--
Total	3	3	3	--
Public Information				
Professional	8	8	8	--
Non-professional	3	3	3	--
Total	11	11	11	--
Media Relations and Special Projects				
Professional	3	2	2	-1
Non-professional	1	1	1	---
Total	4	3	3	-1
Total - Office of Director of Public Affairs				
Professional	19	18	18	-1
Non-professional	7	7	7	---
Total	26	25	25	-1

1/ Proposed.

SALARIES AND EXPENSES

IMMEDIATE OFFICE OF THE SECRETARY
($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from 1993 Enacted
Personnel Compensation and Benefits	$1,250	$1,289	$1,027	-262
Travel	112	135	135	--
Other Costs	9	11	11	--
Total	$1,371	$1,435	$1,173	-262

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from 1993 Enacted
Permanent Positions	14	14	13	13	-1
Full Time Equivalents:	16	14	13	13	-1
Ceiling	16	14	13	13	-1
Non-Ceiling	0	0	0	0	0

The Immediate Office of the Secretary has the primary responsibility to provide overall planning, direction, and control of Departmental affairs.

Changes in Resources

A reduction of $262,000 in personnel compensation and benefits reflects the planned staff level in FY 1994, and transfer of mess cook salaries to the budget of the Assistant Secretary for Administration in line with the OST-wide use of the mess. The request fully funds 13 full-time equivalent positions including annualization of FY 1993 pay increases. No increases are requested in FY 1994 for travel and other costs. Travel costs reflect the emphasis on use of commercial airlines.

SALARIES AND EXPENSES

OFFICE OF THE DEPUTY SECRETARY
($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from 1993 Enacted
Personnel Compensation and Benefits	$407	$377	$440	+63
Travel	18	40	40	--
Other Costs	0	10	1	-$9
Total	$425	$427	$481	+54-

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from 1993 Enacted
Permanent Positions	10	7	7	8	+1
Full Time Equivalents:	5	7	7	8	+1
Ceiling	5	7	7	8	+1
Non-Ceiling	0	0	0	0	0

The Office of the Deputy Secretary supports the Deputy Secretary whose primary responsibility is to assist in the overall planning, direction, and control in Departmental affairs.

Changes in Resources

The FY 1994 request of $63,000 includes an increase of $9,000 to fund annualization of FY 1993 pay increases and $54,000 for a staff increase of one FTE required in support of the services provided by the Deputy Secretary. The increase for personnel compensation and benefits is offset by a reduction of $9,000 for other services in line with past experience.

Salaries and Expenses (Reimbursable)

Office of Intermodalism
($ in thousands)

	FY 1993 Enacted	FY 1994 Estimate	Difference
Permanent positions	14	12	- 2
Full-time equivalents	8	12	+ 4
Personnel Compensation and Benefits	$559	$783	+ 224
Travel	$ 75	$ 75	-0-
Other Costs	$116	$230	+ 114
Total	$750	$1,088	338

The mission of the Office of Intermodalism is to provide Departmental leadership and coordination in developing an intermodal transportation system to move people and goods in an energy-efficient manner, provide the foundations for improved productivity growth, strengthen the Nation's ability to compete in the global economy, and obtain the optimum yield from the Nation's transportation resources.

In addition, the Secretary has specifically directed that the Office examine both existing and proposed regulations to identify and eliminate, where possible, those regulations that frustrate intermodalism.

Change in Resources

Funding for this Office will be reimbursed by FHWA within the Federal-Aid Highway obligation limitation--the same as in FY 1993. $783,000 in personnel compensation and benefits is required in FY 1994 to fund 12 FTE. Travel requirements, made necessary by the need for extensive consultation with the States, are estimated at $75,000. The cost of supplies, furniture, equipment, and consulting support are estimated at $230,000. Consulting support is necessary to permit study of intermodal issues and subjects that will not be addressed by specific modal research plans. For example, research on future trends in intermodal transportation will be necessary to support the development of future reauthorizing legislation. Also, providing technical assistance to States and MOPs on cost-effective intermodal programs will require that we assess institutional barriers to intermodalism and recommend programs to overcome these barriers.

SALARIES AND EXPENSES

OFFICE OF THE EXECUTIVE SECRETARIAT
($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from 1993 Enacted
Personnel Compensation and Benefits	$986	$960	$942	-18
Travel	2	1	1	--
Other Costs	0	4	4	--
Total	$988	$965	$947	-$18

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from 1993 Enacted
Permanent Positions	21	21	20	20	-1
Full Time Equivalents:	21	21	20	20	-1
Ceiling	20	20	19	19	-1
Non-Ceiling	1	1	1	1	0

The Office of the Executive Secretariat provides an organized staff service for the Secretary and Deputy Secretary to assist them in carrying out their management functions and facilitate their responsibilities for formulating, coordinating and communicating major policy decisions. It controls and coordinates internal and external material directed to the Secretary and Deputy Secretary and ensures that their decisions and instructions are implemented.

Changes in Resources

The FY 1994 request provides annualization of FY 1993 pay increases offset by a reduction of one full-time equivalent.

SALARIES AND EXPENSES

BOARD OF CONTRACT APPEALS
($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from FY 1993 Enacted
Personnel Compensation and Benefits	$565	$563	$575	+ $12
Travel	9	7	7	0
Other Costs	15	20	20	0
Total	$589	$590	$602	+ $12

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Permanent Positions	7	7	7	7	0
Full Time Equivalents	7	7	7	7	0
Ceiling	7	7	7	7	0
Non-Ceiling	0	0	0	0	0

The primary responsibility of the Board of Contract Appeals is to provide an independent forum for the trial and adjudication of all claims by or against a contractor relating to a contract of any element of the Department, as mandated by the Contract Disputes Act of 1978, 41 U.S.C. § 601 *et seq.*

Changes in Resources

An increase of $12,000 in personnel compensation and benefits is required to fund annualization of FY 1993 pay increases.

SALARIES AND EXPENSES

OFFICE OF CIVIL RIGHTS

($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Diff.
Personnel Compensation and Benefits.........	$1,471	$1,421	$1,451	+ $32
Travel................	24	21	21	-0-
Other Costs...........	17	20	20	-0-
	$1,512	$1,462	$1,494	+ $32

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Diff. from Enacted
Permanent Positions.....	23	23	23	23	-0-
Full time Equivalents....	22	23	21	21	- 2
Ceiling......	22	21	21	21	-0-
Non-ceiling..	0	2	0	0	- 2

The Office of Civil Rights has primary responsibility for assisting the Departmental Director of Civil Rights in advising and representing the Secretary on civil rights and equal opportunity precepts in all of the Department's official actions.

The increase of $32,000 for personnel compensation and benefits in FY 1994 provides funding for annualization of FY 1993 pay increases offset by a reduction of 2 non-ceiling FTEs. No increase in funding for travel and other services is requested.

SALARIES AND EXPENSES

OFFICE OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION
($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from FY 93 Enacted
Personnel Compensation and Benefits	$ 772	$ 945	$ 926	$ -19
Travel	----	--	--	----
Other Costs.	14	8	8	----
Minority Business Resource Center. . .	2,656	-0-1/	-0-1/	----
	$ 3,442	$ 953	$ 934	$ -19

STAFFING

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 93 Enacted
Permanent Positions. .	16	16	16	15	-1
Full-time Equivalents:	13	15	15	14	-1
Ceiling	13	15	15	14	-1
Non-Ceiling	0	0	0	0	0

The Office of Small and Disadvantaged Business Utilization has primary responsibility for providing policy direction for small and disadvantaged business participation in the Department's procurement and grant programs, and effective execution of the functions and duties under sections 8 and 15 of the Small Business Act, as amended.

Changes in Resources

For personnel compensation and benefits a net reduction of $19,000 provides annualization of FY 1993 pay increases offset by the reduction of 1 FTE.

1/ In compliance with the Credit Reform Act, the MBRC loan program is presented under a separate schedule beginning in FY 1993.

SALARIES AND EXPENSES

OFFICE OF INTELLIGENCE AND SECURITY
($ in thousands)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference from FY 1993 Enacted
Personnel Compensation and Benefits	$1,025	$1,017	$1,040	+$23
Travel	$83	$40	$40	0
Other Costs	$108	$208	$134	-$74
Total	$1,216	$1,265	$1,214	-$51

Staffing

	FY 1992 Actual	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from FY 1993 Enacted
Permanent Positions	15	11	11	14	+3
Full Time Equivalents	11	11	11	14	+3
Ceiling	11	11	11	14	+3
Non-ceiling	0	0	0	0	0

The Office of Intelligence and Security was established during the last two months of FY 1990 to address transportation intelligence and security issues. This action was taken in response to the President's Commission Report on Aviation Security and Terrorism.

This Office provides intelligence and security oversight of the operating administrations, and provides the Secretary and Deputy Secretary with the current intelligence and security information necessary for a Cabinet Officer, with special emphasis on potential or actual terrorist threats to transportation interests. The primary goal of the Office is to increase the level of safety and security to the traveling public. The Office is the Secretary's primary representative to the intelligence and law enforcement communities.

Changes in Resources

For personnel compensation and benefits an increase of $23,000 of required to fund annualization of the fiscal year 1993 base pay increases. Funding for a senior CIA liaison on a consultant basis is reflected in "Other Costs." A staff increase of 3 FTE reflects a technical adjustment for the conversion of 3 Coast Guard positions to civilian positions.

SALARIES AND EXPENSES

THE SECRETARIAL OFFICES (S)

PERMANENT POSITIONS

	FY 1993 Enacted	FY 1993 Estimate	FY 1994 Estimate	Difference from 1993 Enacted
Office of the Secretary				
Professional	10	9	9	-1
Non-Professional	4	4	4	--
Total	14	13	13	-1
Office of the Deputy Secretary				
Professional	3	3	4	+1
Non-Professional	4	4	4	--
Total	7	7	8	+1
Executive Secretariat				
Professional	12	12	12	--
Non-Professional	9	8	8	-1
Total	21	20	20	-1
Contract Appeals Board				
Professional	5	5	5	--
Non-Professional	2	2	2	--
Total	7	7	7	--
Civil Rights				
Professional	15	15	15	--
Non-Professional	8	8	8	--
Total	23	23	23	--
Small and Disadvantaged Business				
Professional	12	12	11	-1
Non-Professional	4	4	4	--
Total	16	16	15	-1
Office of Intelligence & Security				
Professional	8	8	11	+3
Non-Professional	3	3	3	--
Total	11	11	14	+3
Total, Secretarial Offices				
Professional	65	64	67	+2
Non-Professional	34	33	33	-1
Total	99	97	100	+1

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE SECRETARY

RENTAL PAYMENTS

For necessary expenses for rental of headquarters and field space and related services assessed by the General Services Administration, [$130,000,000] $149,605,000. Provided, That of this amount, [$19,000,000] $3,262,000 shall be derived from the Highway Trust Fund, [$29,887,000] $37,114,000 shall be derived from the Airport and Airway Trust Fund, and [$481,000] $576,000 shall be derived from the Pipeline Safety Fund, and [$160,000] $175,000 shall be derived from the Harbor Maintenance Trust Fund: Provided further, That, in addition; $17,524,000 shall be paid to this account from the Federal Highway Administration "Limitation on General Operating Expenses: for assessments by the General Services Administration related to the space needs of the Federal Highway Administration. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

RENTAL PAYMENTS

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69-0117-0-1-407		1992 actual	1993 est.	1994 est.
	Program by activities:			
	Direct program:			
00.01	Direct program	65842	80953	109054
01.01	Reimbursable program	46128	49047	58075
10.00	Total obligations	111970	130000	167129
	Financing:			
39.00	Budget authority (gross)	111970	130000	167129
	Budget authority:			
	Current:			
40.00	Appropriation	65361	80472	108478
40.20	Appropriation (special fund)	481	481	576
43.00	Appropriation (total)	65842	80953	109054
	Permanent:			
68.00	Spending authority from offsetting collections (new)	46128	49047	58075
	Relation of obligations to outlays:			
71.00	Total obligations	111970	130000	167129
72.40	Obligated balance, start of year	327	....	....
74.40	Obligated balance, end of year	....	....	....
87.00	Outlays (gross)	112297	130000	167129
	Adjustments to budget authority and outlays:			
88.30	Deductions for offsetting collections: Trust funds	-46128	-49047	-58075
89.00	Budget authority (net)	65842	80953	109054
90.00	Outlays (net)	66169	80953	109054

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE SECRETARY

RENTAL PAYMENTS

PROGRAM AND PERFORMANCE

Payments to GSA for headquarters and field space rental and related services for all modes except for the Maritime Administration are consolidated into this account. Federal Highway Administration rental payments will be paid by this account in 1994 through transfers from the Federal-aid highways account.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

RENTAL PAYMENTS

OBJECT CLASSIFICATION (in thousands of dollars)

Identification Code 69-0117-0-1-407		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
23.1	Rental payments to GSA..............	65,842	80,953	109,054
99.0	Reimbursable obligations.............	46,128	49,047	58,075
99.9	Total obligations.........................	111,970	130,000	167,129

RENTAL PAYMENTS

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

SUMMARY STATEMENT
(dollars in thousands)

	FY 1992 Actual Obligation	FY 1993 Enacted	FY 1994 Estimate	Difference
Budget Authority	$111,970	$130,000	$149,605	$+19,605

The FY 1994 budget proposes a consolidated account for the Department's rental payments to GSA. The total request for non-MARAD is $167,129,000. The budget proposes appropriations language which directs the reimbursement of $17,524,000 from the FHWA LGOE account to the consolidated account. The request includes $159,946,000 to pay for FY 1993 existing space at FY 1994 rates. It should be noted that the FY 1993 enacted level of $130,000,000 was not sufficient to cover the Department's existing space.

The FY 1994 request of $167,129,000 includes $10,183,000 for critical space increases that are driven in large part by forces outside DOT's control.

- Approximately 59.9 percent of the increases are driven by moves from non-GSA controlled space to GSA controlled space.

- approximately 21.6 percent of the increases are due to lease expirations.

- Approximately 12.9 percent of the increases are driven by program needs related to the U.S. Coast Guard's oil pollution and environmental programs, and the Research and Special Programs hazmat and pipeline safety efforts.

- Approximately 5.6 percent of the increases are to satisfy workload requirements related to the Federal Aviation Administration's HQ modernization program, and new positions in the Federal Railroad Administration for HQ's and the field.

The following table identifies these increases by Operating Administration.

FY 1994 GSA RENT
(In Thousands)

APR 1 1993

MODE	FY 94 BASELINE		FY 94 INCREASES		FY 94 TOTAL	
	SQUARE FEET	DOLLARS	SQUARE FEET	DOLLARS	SQUARE FEET	DOLLARS
OST	1,445	13,589	0	0	1,445	13,589
OIG	95	2,604	0	0	95	2,604
USCG	2,308	43,054	122	1,692	2,430	44,746
FAA	3,189	66,662	874	8,196	4,063	74,858
FRA	134	3,270	7	254	141	3,524
RSPA	73	2,262	3	41	76	2,303
SLSDC	6	175	0	0	6	175
NHTSA	154	4,511	0	0	154	4,511
FTA	108	3,295	0	0	108	3,295
TOTAL FY 94	7,512	139,422	1,006	10,183	8,518	149,605
FHWA	945	17,524	0	0	945	17,524
REV TOTAL 94	8,457	156,946	1,006	10,183	9,463	167,129

GSA RENTAL PAYMENTS
(in thousands of dollars)

	FY 1994 Rqst.	Distribution by Funding Source				
		GF	HTF	A/ATF	HMTF	PS
FHWA	17,524		17,524 1/			
NHTSA	4,511	2,765	1,746 2/			
FRA	3,524	3,524				
FTA	3,295	1,779	1,516 3/			
FAA	74,858	37,744		37,114 4/		
USCG	44,746	44,746				
SLSDC	175				175	
RSPA	2,303	1,727				576
OIG	2,604	2,604				
OST	13,589	13,589				
Subtotal	167,129	108,478	20,786	37,114	175	576
Less FHWA	(17,524)		(17,524)			
Total Rent Appropriation	149,605	108,478	3,262	37,114	175	576
Total GF	109,054					
Total TF	40,551					

1/ FHWA – LGOE to fund by transfer.
2/ NHTSA funding source assumes percentage of TF funding of O&R (.3871)
3/ FTA funding source assumes percentage of TF funding to total (.4603)
4/ FAA funding source assumes percentage of TF funding of Operations (.495793)
5/ RSPA funding source assumes Pipeline Safety occupies approx. 25% of total space

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRANSPORTATION PLANNING, RESEARCH, AND DEVELOPMENT

For necessary expenses for conducting transportation planning research, and development activities, including the collection of national transportation statistics, to remain available until expended, [$3,025,000]$3,033,000. (Department of Transportation and Related Agencies Appropriations Act, 1993.)

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRANSPORTATION PLANNING, RESEARCH, AND DEVELOPMENT

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69-0142-0-1-407		1992 actual	1993 est.	1994 est.
Program by activities				
Direct program:				
00.01	Transportation policy and planning	2651	3980	3033
00.91	Total direct program	2651	3980	3033
01.01	Reimbursable program	876	500	....
10.00	Total obligations	3527	4480	3033
	Financing			
21.40	Unobligated balance, start of year	−505	−955	....
24.40	Unobligated balance available, end of year	955	....	....
39.00	Budget authority (gross)	3977	3700	3033
Budget authority:				
	Current:			
40.00	Appropriation	3100	3025	3033
	Permanent:			
68.00	Spending authority from offsetting collections (new)	876	500	....
Relation of obligations to outlays:				
71.00	Total obligations	3527	4480	3033
72.10	Receivables in excess of obligations, start of year	......	−390	......
72.40	Obligated balance, start of year	627	......	2003
74.10	Receivables in excess of obligations, end of year	390	......	......
74.40	Obligated balance, end of year	......	−2003	−1993
87.00	Outlays (gross)	4544	2086	3043
Adjustments to budget authority and outlays:				
88.00	Deductions for offsetting collections: Federal funds	−876	−500	−0−
89.00	Budget authority (net)	3100	3025	3033
90.00	Outlays (net)	3668	1586	3043

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRANSPORTATION PLANNING, RESEARCH, AND DEVELOPMENT

PROGRAM AND PERFORMANCE

This appropriation finances those research activities and studies concerned with planning, analysis, and information development needed to support the Secretary's responsibilities in the formulation of national transportation policies.

The program is carried out primarily through contracts with other Federal agencies, educational institutions, nonprofit research organizations, and private firms.

Transportation policy and planning. -- This research supports the development of transportation policy, coordination of national level transportation planning, and such issues as regulatory modernization, energy conservation, environmental and safety impacts of transportation.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRANSPORTATION PLANNING, RESEARCH & DEVELOPMENT

OBJECT CLASSIFICATION (in thousands of dollars)

Identification Code 69–0142–0–1–407		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full–time permanent	1,951	1,404	1,438
11.3	Other than full–time permanent	155	181	181
11.5	Other personnel compensation	30	31	31
11.9	Total personnel compensation	2,136	1,616	1,650
12.1	Civilian personnel benefits	267	209	218
21.0	Travel and transportation of persons	30	30	30
23.3	Communications, utilities, and miscellaneous charges	1	–0–	–0–
24.0	Printing and production	208	–0–	–0–
25.2	Other services	–0–	2,085	1,095
26.0	Supplies and materials	9	10	10
31.0	Equipment	–0–	30	30
99.0	Subtotal, direct obligations	2,651	3,980	3,033
99.0	Reimbursable obligations	877	500	–0–
99.9	Total obligations	3,528	4,480	3,033

FY 1993 includes unobligated balances ($954,979).

Personnel Summary

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
Total compensable workyears: Full–time equivalent employment	28	22	22

TRANSPORTATION PLANNING, RESEARCH, AND DEVELOPMENT

FY 1994 Request by Budget Activity and Major Program

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate	Difference
		($ in Thousands)		
Permanent Positions	18	18	18	0
Full-Time Equivalent	24	18	18	0
Non-Ceiling FTE	4	4	4	0
Transportation Policy and Planning	$2,651	$3,025	$3,033	+ 8
A. Developing and Coordinating Transportation Regulatory Policy	5	30	175	+ 145
B. Developing and Coordinating International and Domestic Transportation Policy	0	210	200	- 10
C. Developing and Coordinating Transportation Economic Policy	203	590	420	- 170
D. Salaries and Administrative Costs	$2,443	1,895	1,938	+ 43
E. WCF	0	300	300	0

JUSTIFICATION

OFFICE OF THE SECRETARY OF TRANSPORTATION

TRANSPORTATION PLANNING RESEARCH AND DEVELOPMENT
($ in Thousands)

I. TRANSPORTATION POLICY AND PLANNING

A. Developing and Coordinating Domestic Transportation Policy ($175)

Objectives: To maintain a continuing assessment of the safety, financial condition, and legislative and regulatory impact on components of the nation's private transportation sector, including manufacturers, carriers, shippers, and suppliers. To assess the safety of transportation operations by public sector entities, including human factors aspects. To conduct extensive study and analysis in order to develop additional information to support the rules required by the Americans with Disabilities Act, to defend against adverse litigation, and to consider desirable future regulatory amendments and their cost estimates to fully implement the Act. To estimate the impacts of global climate change on the transportation system and develop broad policy options for adaptation measures. To assess the adequacy of funding levels and process for air quality-related transportation programs.

Accomplishments: Led DOT analysis and development of major legislation affecting trucking, household goods, coal pipelines, intermodal shipping, and rail and bus regulatory reform; monitored the impacts of these and other legislation on the trucking, rail and airline industries and their users; and monitored structural changes in the intercity bus industry. Analyzed costs imposed by state economic regulation of interstate trucking. Developed policy initiatives to improve numerous aspects of transportation safety and monitored the implementation of those initiatives by regulatory action. Regulations covered all transportation modes, including safety belts and airbags for automobiles, front wheel brakes for trucks, commercial vehicle driver licenses, aircraft cabin flammability, aviation terminal control areas, automatic train control devices and post-accident drug and alcohol testing. Prepared databases to monitor Department responses to National Transportation Safety Board recommendations and to follow the progress of Operating Administrations in meeting safety improvement goals under the President's management by objectives program. Developed several regulatory impact analyses estimating the cost of the Department's proposed regulations implementing the Americans with Disabilities Act.

FY 1992; 1993 and FY 1994 Costs: $5; $30 and $175

FY 1994 PROPOSED STUDIES

Actual National Compliance Costs and Effectiveness of Implementing ADA Transportation Regulations. ($75)

To implement the transportation requirements of the Americans With Disabilities Act, the Department published a final ADA rule in FY 1992. The Regulatory Impact Analysis, issued in support of the final ADA rule, estimated partial national compliance costs to the transit and rail industries of the rule's major requirements. Many of these estimates were based, in large part, on hypothetical service and cost assumptions for accessible bus, paratransit, rapid, light and heavy rail systems. Due to insufficient data, cost estimates were not developed for other requirements; most notably, those applying to private transportation operators and companies providing fixed-route services but not primarily engaged in the business of transportation. In addition, all bus systems will incur some as yet unknown costs to make bus stops accessible including installing bus stop pads, talking signs, modifying curbs and installing warning signals or tactile stripping. Many gaps still exist in our knowledge of the cumulative costs of ADA improvements and their impact on increased environmental and historic preservation costs. The Congress has requested the Department to provide improved estimates of the actual national compliance costs of implementing ADA transportation accessibility requirements, and to identify techniques for improving effective compliance with our rule.

The ADA rule is already generating controversy from rail operators regarding the unreasonableness of the service goals and statutory deadlines. There are numerous areas, especially with regard to key rail station accessibility and paratransit service requirements (costs of ADA are expected to be highest), where the statute gives the Secretary of Transportation discretion to waive implementation dates because of extraordinary expenses and undue burdens, which may result in lower compliance costs. Once the Department acts on filings for undue burden waivers and equivalent facilitation measures for vehicles and facilities, and with the advent of ADA rail compliance deadlines in FY 1993, DOT will be in a better position to estimate the costs of the rule and report results to Congress.

This study will consist of a broad monitoring in a representative sample of cities to identify the extent of transportation accessibility services and improvements undertaken by public and private entities as a result of DOT's ADA rule. The objective of the research will be to quantify to the fullest extent possible the actual costs to public and private entities of providing new and/or retrofitted vehicles, service and facility improvements as they attempt to comply with the ADA regulatory deadlines occurring over the FY 1993-95 time period. The findings will be used to develop additional support for the rule in the event of litigation and to report to Congress as requested. The research also has potentially high payoff from the identification of cost-effective improvements and techniques as well.

Impact of State Trucking Deregulation ($100)

The Motor Carrier Act of 1980 substantially deregulated interstate trucking. The reforms provided by this legislation have had a very positive impact, saving users of truck service many billions of dollars a year in overall logistics costs. However, many states still regulate trucking within their borders more strictly than the Interstate Commerce Commission regulates interstate trucking.

Although eight states do not regulate trucking, there is significant recent information about only two of them (Florida and Arizona). DOT-sponsored studies of the impacts of trucking deregulation in Florida and Arizona have been of significant policy value in resisting reregulation of the interstate trucking industry. However, there have been no important studies of intrastate truck deregulation since 1984. In light of the Administration's proposal to deregulate intrastate trucking, more recent research would be extremely helpful in promoting this legislative agenda.

This research would examine the effects of truck deregulation in Wisconsin, which deregulated in 1982. A study done by the Wisconsin DOT six months after state deregulation found no serious problems, but no subsequent research has tracked the long term impacts of Wisconsin truck deregulation.

Surveys of shippers and motor carriers in Wisconsin would be designed to provide information comparable to that produced by surveys utilized in the DOT-sponsored Florida and Arizona studies. This approach would provide in-depth information about how truck rates and services had changed, the financial condition of motor carriers, and whether shippers and carriers favored deregulation. Such a study would be especially timely in light of recent actions taken in the adjacent states of Illinois and Minnesota to tighten regulation of their trucking industries.

B. International and Domestic Transportation Policy ($200)

Objectives: Provide Departmental leadership on international transportation issues and assess their economic, financial, technological and institutional implications for U.S. transportation carriers and trade potential. Define and execute the international transportation policies of the United States. Promote and defend the interests of U.S.-flag air and maritime carriers operating internationally and the related interests of land carriers. Provide for the development of competitive international transportation services responsive to the needs of passengers, of shippers and consignees of goods, and of their communities. The Office is also responsible for analyzing the long-term consequences of emerging public and private sector transportation issues and trends as well as proposing policy responses and initiatives.

Accomplishments: The international programs of the Office met significant challenges in FY 1991. Aviation negotiators achieved important market-access objectives, including the substitution of United Air Lines and American Airlines for Pan American and TWA at London's Heathrow Airport, a substantial expansion of rights with Mexico, and the opening of broad-ranging liberalization talks with Canada and the United Kingdom. Numerous other meetings expanded or preserved route rights and resolved aviation problems with partners in Europe, Latin America, and around the Pacific rim. In all, the Office provided analytical preparation for and conducted some 57 negotiations with 25 countries and 5 multilateral groups just for international aviation.

The Office also pursued expanded surface transportation opportunities in negotiations with Canada and Mexico to develop a North American Free Trade Agreement (NAFTA). By year-end the foundation had been laid for important market access gains both in land and maritime transport. In addition, through its Transportation Policy Advisory Committee, the Office held a series of meetings to gather and distill data and policy perspectives on foreign investment in U.S. transportation enterprises.

The United States has reached an agreement with the EC that will reduce Airbus development subsidies substantially and eliminate production subsidies forever.

As Chair of the Transportation Facilitation Committee (TFC) the Office has been successful in encouraging the expansion of preinspection to the U.K., has continually supported the implementation and expansion of the Advance Passenger Information System, encouraged development and implementation of new technologies and techniques for inspection arriving international passengers, promoted improvements to preclearance programs, supported expansion of the visa waiver program, and strongly supported expansion of the use of electronic data interchange for handling cargo and passenger documentation. Each of these initiatives is contributing to speeding the processing of international passengers and cargo into and out of the United States.

Since 1989, when it first became possible to do so under the U.S.-Canada Free Trade Agreement (FTA), the Department has been working with the U.S. railroad industry to remove all tariffs on Canadian railroad equipment, and major Customs fees related to the use by U.S. railroads of Canadian railroad equipment. Doing so would allow U.S. railroads to use Canadian railroad equipment during railroad equipment shortages in the United States -- which often occur during the grain harvest season. The main mechanism for accomplishing these changes is the annual Accelerated Tariff Removal negotiations that occur under the FTA. The negotiations are conducted by the Office of the United States Trade Representative. DOT has been partially successful to date: tariffs have been removed on locomotives and used freight cars. However, Customs fees continue to thwart efforts by U.S. railroads to use Canadian railroad equipment. This year, for the first time, DOT has been asked to directly staff the Office of the United States Trade Representative on the issue of the removal of tariffs on railroad equipment. Moreover, there may be legislative or other solutions to the problem of Customs fees, and the resolution of Customs fee issues could have an effect on this year's negotiations. The negotiations will take place during approximately July-December 1992.

FY 1992; FY 1993 and FY 1994 costs: $0 $210 $200

FY 1994 PROPOSED STUDIES

Analysis of the Transportation Impact of the North American Free Trade Agreement ($80)

To establish an analytic framework and baseline data for the analysis of the impact on Mexico, Canada, and the United States of the removal of legal barriers to truck and bus operations in each other's country.

As a result of successful completion of negotiations on the North American Free Trade Agreement (NAFTA), and assuming Congressional approval of the agreement, over a ten year period existing reciprocal restrictions on the transport of cargo and goods into the two countries will be removed. One of the elements of the land transportation provision is a review after five years to determine the impact of access and investment liberalization. This review is intended to determine the effectiveness of gradually increasing access and any problems or unanticipated effects. The findings of this review could result in modifications to the schedule of the removal of legal barriers.

An analytic framework for the continued monitoring of the surface transportation effects of the NAFTA based on economic baseline data will need to be developed. Economic baseline data would include estimates of cross-border market flows by truck disaggregated by port of entry, market share by country, average rates by type of carriage, service levels, percentage of the total market represented by domestic and international carriage in the three countries, and other economic indicators prior to implementation of NAFTA in order to establish a basis for comparison of post-NAFTA effects. Coverage of economic baseline data should extend to U.S., Canadian, and Mexican carriers so that the United States can develop independent verification of NAFTA effects on carriers on both sides of the border. An assessment of the investment effects of NAFTA is also required under the agreement and will likely need to be developed from scratch because this information is not generally collected by the United States as part of ongoing transportation statistical collections.

Competition in the Global Aviation Environment ($70)

The pace of change in world civil aviation is accelerating as coexistence becomes more difficult between the inefficient, protected airlines of some nations and the entrepreneurial airlines of the United States and other procompetitive countries. Many of the changes in international aviation were set in motion by the United States' domestic deregulation and adoption of a procompetitive policy in our relationships with aviation partners abroad. Foreign responses have varied, however. France has renounced its aviation agreement with us in order to control the degree of competition, and even those countries that agree with us in principle have been selective in embracing procompetitive practices. Others, such as Canada and the United Kingdom, which have resisted liberalizing influences in the past, now have entered broad liberalization talks with the United States that could produce "open-skies" regimes, and the Department has proposed open-skies with all European countries.

Meanwhile, many foreign airlines have grown and now present a much stronger competitive challenge to the U.S. air transportation industry. European economic integration, which in aviation may eventually encompass not only the EC but also members of the European Free Trade Area (EFTA) in a broader European Economic Area (EEA), will present enormous challenges and opportunities which DOT must be prepared to meet. European integration could have a liberalizing effect, or it could create an economic "Fortress Europe," but both possibilities must be evaluated. Developments in other world regions will equally test traditional aviation tenets.

Because of such a dramatically altered international competitive environment for U.S. airlines, DOT must refine our international aviation policy in light of these developments and determine strategically how to implement our procompetitive objectives. To execute our policy effectively, the Department must carry on comprehensive examination of the international aviation competitive environment. The Department proposes to analyze and evaluate these developments and their implications for U.S. aviation policy. This will require extensive research and reconciliation of diverse international data sources as well as modeling of alternate scenarios to produce meaningful results.

In 1992, the proliferation of transnational airline investments throughout the world has underscored the need for this strategic evaluation. The earlier phase of this study was proposed in the Department's FY 1993 budget. Since that budget was submitted, further developments have demonstrated the need for substantial resources dedicated to the proposed area of inquiry. For example, liberalization talks are well underway with Canada and the United Kingdom, and Europe is moving inexorably toward aviation integration.

International Competitiveness Initiative ($50)

Undertake a series of studies focusing on the opportunities to (1) adopt new technologies and market-based principles and (2) eliminate regulatory barriers which impede full participation in the global marketplace. These studies would form a building block for developing new policy initiatives. These studies would include, but not be limited to:

-- The size, structure, and financial and operating condition of international air carriers--to understand what is needed to achieve a global aviation market.

-- Identify intermodal international barriers affecting all transportation sectors--to understand what is needed to support a seamless vendor chain.

-- Changes in asset ownership and its implications in the global marketplace for international goods movement.

-- Technological "pre-clearance" opportunities to support goods movement.

-- International cargo flow and market analysis--to understand what is needed in the way of infrastructure to support goods movement.

C. Developing and Implementing Transportation Economic Policy ($420)

Objectives: To identify current and emerging transportation policy issues that require decisions by top management; to analyze their economic and institutional implications; and to develop program recommendations. To be particularly concerned with: (1) the character and impact of Federal financial assistance, investment in and regulation of public transportation facilities and services, trust funds, and user charges; and (2) the economic efficiency of the national transportation system, energy, environmental, and other issues involving the relationship of transportation policy to national economic goals and community development.

Accomplishments: Completed the State Transit and Highway Funding Study which was required by the House report on fiscal year 1990 appropriations for the Department of Transportation. The appropriations report directed the Department to "...evaluate whether a balance between highway funding and transit funding may require in some cases that Federal highway funds be conditioned on an adequate state funding commitment to mass transit, especially where the state must help support transit authorities serving urbanized areas with populations over 3,000,000."

The Department concluded that all of the states with metropolitan areas of one million population or more provide significant funding for transit. The decision as to the amount and form of state assistance for transit is one most effectively and appropriately made at the state level. It would be inappropriate for the Federal Government to intrude in this decision. With respect to Federal funding, the recently passed Intermodal Surface Transportation Efficiency Act of 1991 provides significantly increased flexibility for states and metropolitan areas to determine whether funds will be used for highway or transit purposes. This reflects the sound principle that state and local officials are best equipped to make the decisions affecting local transportation services.

The Policy Office continued to ensure that the implementation of the Intermodal Surface Transportation Efficiency Act of 1991 reinforces the intermodal objectives and flexibility (in the use of funds and in the participation of the public and private sectors) that represent major new policy directions. It is also essential that the intermodal and flexibility features are implemented in a way that contributes to the effectiveness and efficiency of transportation in this country. The nation's economic competitiveness will depend, to a large extent, on the maintenance and development of an efficient intermodal transportation system.

The office represented the Department in the planning, implementation and management of the President's Rural Development Initiative. As a member of the Initiative's interdepartmental management group, DOT has been involved in the origination and oversight of the State Rural Development Councils which provide the primary focus for the Initiative by acting as a rural development planning and coordinating body among Federal, state and local governments and the private sector interests in each state in which they are in existence. During FYs 1992 and 1993, the number of State Councils will expand from eight to forty-four, and the management group has been the entity which has planned and will oversee this expansion. The office has coordinated representation by DOT field staff on each of these State Councils among the operating administrations.

Developed provisions to be inserted into the Department's surface and aviation reauthorizing legislative proposals that would have caused the Department's grant programs to be administered in a more multimodal fashion by breaking down some of the categorical barriers in the grant programs. While only partially successful in having the provisions inserted in the bills, the effort did result in increasing discussion and raising the visibility of the need to view and manage transportation in a multimodal fashion.

The office developed and coordinated through the Department a proposed policy on the voluntary use of peak period pricing at airports. The proposed policy would apply economically based pricing principles to structuring landing fees, in a manner similar to the use of congestion or peak period pricing throughout the economy. The concept has been well received by a number of interested parties, though it will require continued coordination and development with affected user groups.

Participated in a jointly FHWA/FRA/OST funded study of the effects of changes in truck size and weight limits that would permit longer combination vehicles (LCV's) and other heavy pounds. Particular attention is focused on the impact on railroads as well as public infrastructure costs. A draft final report on this study is expected in June 1992.

Conducted an analysis of legal and regulatory constraints on airport privatization. A number of privatization options were assessed in the preparation of a policy options paper for high level management review and decision. The President's Executive Order on Infrastructure Privatization (EO 12803) was reviewed for applicability to various transportation sectors, especially airports.

Worked with the FAA and others in the development and publication of the rule implementing the Passenger Facility

Charge statute. Participated on an in-house evaluation team reviewing PFC applications from airport sponsors and recommending to FAA management whether applications should be approved, modified or disapproved.

In addition to our continuing work on the rulemaking proceeding on airline computer reservation systems, our office prepared an analysis of the airline industry that was used by the Department of Commerce in its U.S. Industrial Outlook 1992.

Undertook an analysis of state and local financing assistance to encourage air carriers to build facilities at certain locations.

Our auto industry paper assessed the importance to the U.S. auto manufacturers of the loss of domestic market share to European and Japanese auto makers, as well as the growth of foreign investment in manufacturing and marketing facilities in the United States. The paper also evaluated the importance of federal regulations affecting domestic content, import restraints, fuel economy, emissions, safety, and trade.

Over the past year, the Policy office has taken an active role in developing the Department's intelligent vehicle highway systems (IVHS) program. Participated in the organization and development stages of IVHS America's National Strategic Plan for IVHS development and implementation. Continue to participate in a working group that is preparing the Department's IVHS Strategic Plan (which must be submitted to Congress). Developing a research program that will improve our understanding of institutional and nontechnical barriers to IVHS deployment and implementation. As part of this effort, the Policy office has coordinated with other DOT offices on the types of research that should be undertaken, and have developed work statements for several research projects.

Our Office represented the Department of Transportation on the Interagency Commission on Alternative Fuels, which was established by the Alternative Motor Fuels Act of 1988 (AMFA). The Act calls for assessments of the role of alternative fuels in the U.S. transportation sector, and development of policies to promote the use of alternative fuels. Participated, through the Interagency Commission, in development of studies required by the Act, and in development of the annual report to Congress due September 30. 1992. In addition, the Policy office represented DOT at sessions of the Alternative Fuels Council, the advisory group to the Commission. Monitored activities under the Federal Transit Administration's Alternative Fuels Bus Testing Program, which is called for under the Act.

Continued to lead two important forums for improving the availability and quality of transportation data needed for informed decision making, the Federal Interagency Transportation Statistics Committee (FITSC) and the DOT Transportation Data Coordinating Committee (DOT TDCC). Four working groups have been formed under FITSC for coordination in specialized areas of goods and passenger movement, international transportation statistics and transportation geographic system data. FITSC membership is open to all interested Federal agencies and is chaired by the Deputy Assistant Secretary for Policy and International Affairs. The DOT TDCC representatives are members of DOT agencies.

The Department signed a Memorandum of Understanding with the Bureau of the Census for the purpose of establishing a more formal mechanism for coordination and planning of Census Bureau transportation data collection programs. The Census Bureau is becoming a more important source of data needed for policy analysis and development as much information is no longer collected by regulatory agencies.

FY 1992; FY 1993 and FY 1994 costs: $203; $590 and $420

FY 1994 PROPOSED STUDIES

Alternative Fuels and Transportation ($50)

The impetus for U.S. development and use of alternative fuels for transportation has come from air quality, global warming and energy security concerns. Major legislation, i.e., the Clean Air Act Amendments of 1990, is already in place requiring the use of clean fuels, with some requirements starting in the early 1990's. Comprehensive energy legislation, including requirements for expanded use of alternative fuels in transportation, was enacted in 1992. This legislation has major implications for transportation; however, because developments have been moving quickly and because the ways in which alternative fuels requirements will be satisfied are still uncertain, the potential impacts on transportation, and needed adaptations to these impacts, are not well understood.

This study would identify the legislative requirements for reformulated gasoline and alternative fuels, in the Clean Air Act, the Energy Policy Act of 1992, and elsewhere, and attempt to quantify the overall impact on transportation fuel nationally and by region. The study would include an assessment of the impacts of shifts to alternative fuels on transportation finances, including Highway Trust Fund revenues. The impacts of the energy tax proposed as part of the Administration's economic package on alternative fuels and on the transportation sectors will be examined. Projections of the types of fuels used would be made, for a near term period and for a longer term. Identification of the transportation sectors which will be affected will be made, e.g., personal transportation, automobile fleets, truck fleets, as well as other sectors impacted, e.g., automobile manufacturing, conversion kit manufacturers, oil refiners and marketers, alcohol fuels producers, etc. The study also would assess the cost and other economic impacts on these sectors (with emphasis on transportation sectors) and would identify strategies to mitigate and adapt to, these impacts.

Surface Transportation Evaluation Procedures ($50)

The passage of the Intermodal Surface Transportation Efficiency Act of 1991 and the Clean Air Act Amendments of 1990 has brought increased concern about the limitations of travel forecasting procedures to meet the requirement of these acts. The current travel forecasting procedures have been in use for almost 30 years. Although some improvements have been made over the years, these procedures are basically the same as those originally developed in the early 1960's.

These procedures are limited in terms of their ability to analyze the types of alternatives envisioned by these acts and in their ability to accurately estimate the impacts of these alternatives. Furthermore, many changes have occurred in the demographic diversity and development patterns of the nation, in transportation and telecommunications technologies, and in computer hardware and software capabilities that need to be incorporated into these procedures.

This project would begin the process to develop a new generation of travel forecasting and evaluation procedures. The eventual goal would be to: evaluate current forecasting capabilities and limitations; incorporate new knowledge; design, produce and demonstrate new procedures; determine data requirements; write user friendly software; and, disseminate the procedures through training programs and other means. This project would be closely coordinated with FHWA, FTA, EPA, and DOE.

Effect of Rapidly Growing Point-to-Point Service by Low-Cost Airlines on Domestic Competition ($100)

Under airline deregulation hub-and-spoke systems of service proliferated very rapidly and are the chosen method of operation for most large airlines in domestic markets. Studies by the Department and others have shown that the development of hub-and-spoke systems of service has stimulated fierce price competition and has resulted in much improved service to most cities, particularly smaller cities. Within the past two years, a totally different kind of domestic operating strategy has expanded very rapidly -- low cost, point-to-point service. Southwest airlines is the prime example of this powerful new competitive force. Until very recently Southwest was essentially a Dallas Love Field niche carrier. It is now by far the fastest growing domestic airline and is also the lowest cost airline by a wide margin, except for America West, whose costs are comparable. Wherever Southwest operates it charges such low fares that other carriers, including the Big Three, must follow suit. Wherever they compete, Southwest -- not one or more of the Big Three airlines -- regularly sets the price.

The spread of low cost, point-to-point service is having a profound effect on competition. Southwest operates almost exclusively in the dense, short-haul markets that hubbing carriers rely upon to generate profits for their hub-and-spoke networks, and the higher-cost hub operators are having difficulty competing with Southwest. The hub-and-spoke carriers are now seeking strategies to respond to this new form of competitive service.

This important study will evaluate the extent to which low-cost, point-to-point service is likely to continue to spread, alternative strategic responses of other airlines, and the implications for the competitiveness of the airline industry.

Ability of Low-Fare Service to Stimulate Traffic Growth in Domestic Markets ($100)

Airline domestic passenger growth has been flat since 1989. It has been suggested that the domestic market may have matured, and is likely to exhibit a very slow rate of growth in the future. This has significant implications for the future competitiveness of the airline industry. For example, it would be considerably more difficult for smaller airlines to expand and successfully further engage in competition with the larger airlines if the overall traffic base remains relatively constant, because expansion would come totally at the expense of the larger airlines. In other words, the smaller airlines would be limited to competing for a larger piece of essentially the same pie.

If, on the other hand, the travel base can be further developed, then expansion opportunities of smaller airlines can in part be built around new traffic. One vehicle for increased domestic traffic is lower fares. It is known that low-cost, low-fare services greatly stimulate travel demand in every new market that such airlines enter. This study will focus on the elasticity of demand in domestic airline markets and its impact on airlines.

Computer Reservation Systems ($120)

Airline computer reservation systems (CRS) play an indispensable role in today's air travel industry. These systems have been regulated since 1984, first by the Civil Aeronautics Board and now by the Department of Transportation. In recent years, DOT has prepared two major studies on the CRS industry (in 1988 and 1990). The DOT plans to examine current rules to govern CRS operations and the business practices of the airline owners of these systems.

The CRS industry continues to evolve. New technology and market relationships (e.g., joint ventures with foreign CRS will alter standard industry business practices). Any changes to the current CRS rules would also change industry practices. The DOT must keep abreast of these developments, since they will influence competitive behavior and outcomes in the airline industry, both at home and abroad. This study will describe, chronicle, and analyze the most important recent developments in the CRS industry and assess how they affect airline competition.

Salaries and Administrative Costs $1,938

Proposed: To accomplish the policy objectives of the TPR&D research budget, a total of $1,938,000 is requested for FY 1994, with $1,868,000 for personnel compensation and benefits. An increase of $43,000 is included to annualize the FY 1993 pay increases. The remaining $70,000 administrative funds are requested for: travel ($30K) to monitor the progress of the projects and studies by contractors and to gather data on transportation issues of various transportation industries; supplies ($10K) and word processing equipment ($30K) for professional and secretarial staff.

FY 1992 and FY 1993 Costs: $2,443 $1,895 $1,938

E. Payments to WCF $300

Payments to Working Capital Fund for Administrative support costs.

FY 1992; FY 1993 and FY 1994 Costs: $0 $300 $300

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

OPERATIONS AND RESEARCH-OCST

For necessary expenses for operations and research activities related to commercial space transportation, [$4,275,000] $5,190,000, of which [$1,200,000] $3,183,000 shall remain available until expended: [Provided, That notwithstanding any other provision of law, there may be credited to this account up to $300,000 received from user fees established for regulatory services.] (Department of Transportation and Related Agencies Appropriations Act, 1993)

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

OPERATIONS AND RESEARCH – OCST

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69–0108–0–1–407		1992 actual	1993 est.	1994 est.
Program by activities				
Direct program:				
00.01	Operations	2828	3286	3645
00.02	Research	1480	1290	1545
00.91	Total direct program	4308	4576	5190
01.01	Reimbursable program	300	....	....
10.00	Total obligations	4608	4576	5190
	Financing			
21.40	Unobligated balance, start of year	−342	−301	....
24.40	Unobligated balance available, end of year	301	....	....
25.00	Unobligated balance expiring	8	....	....
39.00	Budget authority (gross)	4575	4275	5190
Budget authority:				
	Current:			
40.00	Appropriation	4275	4275	5190
	Permanent:			
68.00	Spending authority from offsetting collections (new)	300	....	....
Relation of obligations to outlays:				
71.00	Total obligations	4608	4576	5190
72.40	Obligated balance, start of year	1752	1910	2128
74.40	Obligated balance, end of year	−1910	−2128	−2448
78.00	Adjustments in unexpired accounts	−5	....	....
87.00	Outlays (gross)	4444	4359	4870
Adjustments to budget authority and outlays:				
88.40	Deductions for offsetting collections: Non–Federal funds	−300	....	....
89.00	Budget authority (net)	4275	4275	5190
90.00	Outlays (net)	4144	4359	4870

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

OPERATIONS AND RESEARCH-OCST

PROGRAM AND PERFORMANCE

This appropriation finances regulatory activities, research and development, and studies needed to carry out the Secretary's responsibilities as defined in Executive Order 12465 to encourage, facilitate, and promote commercial space launches by the United States private sector and to license and regulate commercial launches, launch site operations, and certain payloads under the Commercial Space Launch Act (Public Law 98-575).

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

OPERATIONS AND RESEARCH – OCST

OBJECT CLASSIFICATION (in thousands of dollars)

Identification Code 69–0108–0–1–407		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Direct obligations:			
	Personnel compensation:			
11.1	Full–time permanent	1,314	1,140	1,576
11.3	Other than full–time permanent	39	28	28
11.5	Other personnel compensation	25	23	23
11.9	Total personnel compensation	1,378	1,191	1,627
12.1	Civilian personnel benefits	260	194	300
21.0	Travel and transportation of persons	98	60	80
22.0	Transportation of things	1		
25.1	Consulting Services	934	860	860
25.2	Other services	1,637	2,271	2,323
99.0	Subtotal, direct obligations	4,308	4,576	5,190
99.0	Reimbursable obligations	300	–0–	–0–
99.9	Total obligations	4,608	4,576	5,190
	Includes unobligated balances ($301,414).			

Personnel Summary

Total compensable workyears: Full–time equivalent employment	25	23	26

OPERATIONS AND RESEARCH

SUMMARY STATEMENT

The OPERATIONS AND RESEARCH appropriation finances the functions of the Office of Commercial Space Transportation. The FY 1994 request is $5,190,000. The main categories of this request are: $1,638,000 for personnel expenses to annualize FY 1993 pay increases, and a staff increase of 3 FTE in support of the licensing program and policy analysis; $80,000 to fund travel requirements; $3,183,000 for research and safety contracts.

OPERATIONS AND RESEARCH--OCST

OFFICE OF COMMERCIAL SPACE TRANSPORTATION (OCST)

	FY 1992 ACTUAL	FY 1993 ENACTED	FY 1994 PRESIDENT	DIFFERENCE
PERSONNEL COMPENSATION AND BENEFITS	$1,638	$1,529	$1,927	+$398
TRAVEL	$ 99	$ 60	$ 80	+$ 20
CONTRACTS AND OTHER PROGRAM COSTS:	$2,571	$2,686	$3,183	+$497
A. Safety Operations	$ 925	$ 939	$1,500	+$561
B. Regulatory and Safety Analysis	$ 993	$1,205	$1,125	-$ 80
C. Domestic Policy Analysis	$ 587	$ 387	$ 398	+$ 11
D. International Trade Monitoring and Policy Analysis	$ 0	$ 78	$ 80	+$ 2
E. Program Affairs	$ 66	$ 77	$ 78	+$ 1
TOTAL	$4,608[1]	$4,275	$5,190	+$915

STAFFING

	FY 1992 ACTUAL	FY 1993 ENACTED	FY 1993 ESTIMATE	FY 1994 ESTIMATE	DIFFERENCE FROM FY 1993 ENACTED
Permanent Positions	24	24	24	27	+3
Full Time Equivalents	25	24	23	26	+2
Ceiling	25	23	23	26	+3
Non-Ceiling	0	1	0	0	-1

The duties of the Office of Commercial Space Transportation are to carry out the Department's responsibilities defined in the Commercial Space Launch Act, as amended; Executive Order 12465; and the National Security Decision Directive on National Space Policy. These responsibilities include regulating U.S. private sector commercial space launch activities to protect public safety and other important national interests, as well as encouraging, facilitating, and promoting such activities. The 1990 amendments to the Commercial Space Launch Act expanded the Department's role in facilitating the strengthening and expansion of U.S. space transportation infrastructure, as well as launch site support facilities, including the promotion of public-private partnerships involving the Federal Government, State governments, and the private sector to build, expand, modernize, or operate space launch infrastructure. OCST supports the Secretary in his role as the President's principal advisor and spokesman on Federal commercial space transportation policy. The Office of Commercial Space Transportation (OCST) is committed to the goal of a safe and internationally competitive commercial space transportation industry. Its regulatory approach is designed to allow the industry flexibility to achieve safe operations in the most efficient means possible.

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[1] Includes reimbursable activity, of which $200,000 was derived from user fees collected in the licensing activities.

OCST is composed of three program divisions: Licensing and Safety, Commercial Space Policy and International Affairs, and Program Affairs. These three divisions work together to provide a licensing and regulatory framework to protect public health and safety and ensure that national security and foreign policy interests of the U.S. are not jeopardized by commercial space launch operations, and a policy that encourages and facilitates (or supports) private sector participation in commercial launch activity. In addition, the OCST strives for the promotion of commercial space transportation. The divisional structure permits OCST to maintain a distinct separation between its regulatory and promotional roles.

President Clinton, in his FY 1994 budget address, stated:

> "The world is changing so fast that we must have aggressive, targeted attempts to create the high-wage jobs of the future. That's what all our competitors are doing. We must give special attention to those critical industries that are going to explode in the 21st century, but that are in trouble in America today, like aerospace."

Largely as a consequence of the burgeoning commercial space industry, OCST's workload has increased measurably and changed radically over the last several years. At its inception in 1989, the commercial launch industry had only several types of launch vehicles at its disposal. Federal supervision by the Department of Transportation of the industry's first years of launch activity was made easier by the fact that companies were launching proven vehicles from government range facilities, using vehicles and following procedures established under the auspices of NASA and the Air Force, and procuring range safety and tracking services from the Government. During the past several years, the industry has been undergoing a gradual transformation. Compared with the basic three industry workhorse vehicles that OCST was regulating in 1989--Atlas, Delta, and Titan--by the end of FY 1993 OCST's licenses and oversight will cover a number of additional vehicles, some of which will be flying for the first time. In 1991, OCST began its first design review to ascertain the safety of a vehicle embodying new technology in a totally new application with similar reviews expected in FY 1994.

The first two licensed commercial launches occurred during FY 1989. Four years later (through March 1993), OCST has overseen 34 launches. Some of these launch attempts constituted the first attempted launch of a particular vehicle. OCST has regulated launches from Vandenberg Air Force Base, California; Cape Canaveral, Florida; White Sands, New Mexico; and Barking Sands, Hawaii. In accordance with the Commercial Space Launch Act as amplified in the amendments of 1988, OCST had set insurance requirements for approximately 16 vehicles operating at seven or more launch sites. Eight commercial launch attempts (including 6 successful and 2 unsuccessful launches) were made in FY 1992. These unsuccessful launches resulted in OCST's participation in 2 investigations. (Safety integrity was determined not to be compromised by any of the seven launch failures that occurred through September 1992.) The U.S. Commercial Launch Manifest, as of April 1993, showed a total of 42 launches and reentry events already booked for the next several years.

By FY 1992, state and private sector initiatives for commercial launch sites drove the need for OCST analysis directed at safety-related requirements. In compliance with the National Environmental Policy Act, OCST is directing a joint Environmental Impact Statement with the State of Hawaii for a proposed commercial launch facility. In 1992, the commercial industry was planning the first ever U.S. land recovery of an orbital reentry (COMET) spacecraft. OCST had begun a design review to ascertain its safety and studied proposed reentry vehicle landing sites at White Sands, New Mexico, and sites in other states. Relative to the outer space environment, OCST continued safety analysis and worked jointly with NASA and DOD to review options for reducing orbital debris.

In order to keep pace with a growing demand for licenses for launch and related operations, OCST shifted the focus of its licensing process from individual launches to longer-term launch programs by issuing three *launch operators* licenses. This allowed DOT to maintain a high level of safety while facilitating the licensing process, reducing the paperwork burden on the industry, reducing the number of applications handled by the Office, and providing more efficient regulation of the complete spectrum of activities covered by the Commercial Space Launch Act, as amended. In late FY 1991, OCST established regulations for user fees for license applications and launches, and has applied collected fees to OCST's licensing operation. (Fees were subsequently curtailed due to legislation prohibiting their collection without specific authorization.)

CHANGES IN RESOURCES

Personnel Compensation and Benefits

For FY 1994, a total of $1,927 thousand in personnel compensation and benefits is required to fund the annualization of the January 1993 pay raise at 3.7%, normal within-grade and merit pay increases, and additionally fund an increase of 3 FTE. The requested staff increase funded for a half year is 3 positions/3 FTE for engineers or other technical specialists to support the commensurate increase in licensing activities and regulatory and safety analysis. This increase in staff is necessary because of the volume of complex technical issues with which the Department must now deal. These issues are discussed in detail in the following pages. OCST makes extensive use of contractor support, but certain regulatory activities are more appropriately and efficiently carried out by Government personnel.

Many changes taking place in the commercial space arena are resulting in an increased workload in the area of license application evaluation and approval. Licenses will likely be issued for launches, including launches transporting reentry vehicles into space and for launch and landing sites, involving the evaluation and approval of personnel, procedures, support equipment, system safety plans, payloads, reentry vehicle systems, and operations on orbit. Maximum probable loss is determined to establish insurance levels for each license.

The compliance monitoring program is integral to the licensing program. Inspection trips, tracking launch activity and due dates, evaluating data submissions, general correspondence, and other work require considerable resources above that required for trips. For the twelve month period ending in May 1992, OCST spent approximately 180 person-days supporting inspections including document reviews, preparing for the trip, traveling to and from the site, time spent at the site, and time spent afterward preparing inspection reports. This represents a total of 10 percent of the available staff resources. Site inspections accounted for 15 percent of this, and those supporting vehicle safety approvals accounted for 27 percent. These last two areas are expected to take a greater share of the resources in FY 1993 and beyond. Due to the change and increase in the regulatory and safety workload, the reliance on inspection activity in this area will have increased four fold by 1994.

Travel

An increase of $20,000 over the travel funding in FY 1993 (a total of $80,000) is requested. Frequent commercial space transportation activity will require increased travel necessary to carry out the broad regulatory and policy responsibilities anticipated in FY 1994. The ability of OCST to assure the protection of public safety is dependent on an adequate travel budget to meet the requirements of licensing, safety inspections and reviews, and safety review and approval of equipment, personnel, and procedures. Inspections of operations at existing launch facilities, operations centers, manufacturing facilities, and company headquarters will continue to constitute a major share of OCST travel.

A launch failure places additional travel requirements on the Office as it may be necessary to attend several review board meetings. OCST participation is needed to ensure that safety was not placed at risk by the failure. The geographic remoteness of some space launch sites used for commercial launches also imposes major travel burdens. Wherever practicable, OCST will continue to utilize the on-site presence of other organizations to minimize the need for travel.

Travel must also continue in support of DOT's participation in various government-to-government trade negotiations to ensure a fair and competitive international market for U.S. industry. Under the auspices of the United States Trade Representative (USTR) interagency group, OCST plays a vital role in formulating guidelines and principles for these negotiations, and provides important technical and data support to USTR. Negotiations with the European Space Agency (ESA) and its member states began in September 1990, and are expected to be ongoing during FY 1994. Discussions with China and Russia regarding international trade in space launches are also expected to continue through FY 1994.

SAFETY OPERATIONS, REGULATORY AND SAFETY ANALYSIS, POLICY ANALYSIS, PROGRAM ADMINISTRATION, AND PROGRAM AFFAIRS

A total of $3,183,000 is requested for contract support for Safety Operations; Regulatory and Safety Analysis; Domestic and International Policy Analysis; Program Administration; and Program Support categories. The following is a break-down of program requirements by category:

A.	SAFETY OPERATIONS	$1,500

Objectives: To protect public health and safety as mandated by Congress in the Commercial Space Launch Act, as amended (the Act), in a manner that ensures high levels of public safety while encouraging innovation and growth in the United States space industry through regulation and licensing of commercial space transportation operations and launch sites; the implementation of safety standards and safety review and approval requirements for personnel, procedures, and hardware; the monitoring of activities to ensure compliance with the Act, established regulations and license requirements; enforcement; accident investigations, and the issuance of insurance requirements.

Accomplishments:

Under the regulatory oversight of the Office of Commercial Space Transportation (OCST), the U.S. commercial space transportation industry has grown both in terms of the amount of activity and the diversity of the ventures undertaken or planned, including new launch vehicles and launch modes, reentry vehicles, launch sites, and space-based launch activity.

In FY 1993, OCST plans to have completed its safety analysis and made a determination on a reentry vehicle design for the first

U.S. commercial reentry vehicle currently scheduled to be launches into space mid 1993.

In FY 1993, accident investigation plans that reflect the existing memorandum of understanding with the National Transportation Safety Board (NTSB) should be published for the industry incorporating commercial reentry operations and commercial launch facilities. OCST will also continue to add a large body of new information to its database on space transportation safety, including data on space accidents and failures.

Due to an incident that occurred during a 1993 launch, OCST conducted an enforcement investigation that paralleled an NTSB investigation.

By FY 1993, OCST plans to have the computing capability to perform a wide variety of space transportation analyses, including trajectories, orbit determinations, and risk assessments, and have access to the U.S. Space Command space object catalog electronic data.

In FY 1993, OCST plans to have completed its safety assessment of the capability of Wallops Flight Facility, a national range, to support the launch of commercial ELV's which are larger than previous Government vehicles launched from that range.

FY 1992 & FY 1993 Costs: $925 & $939

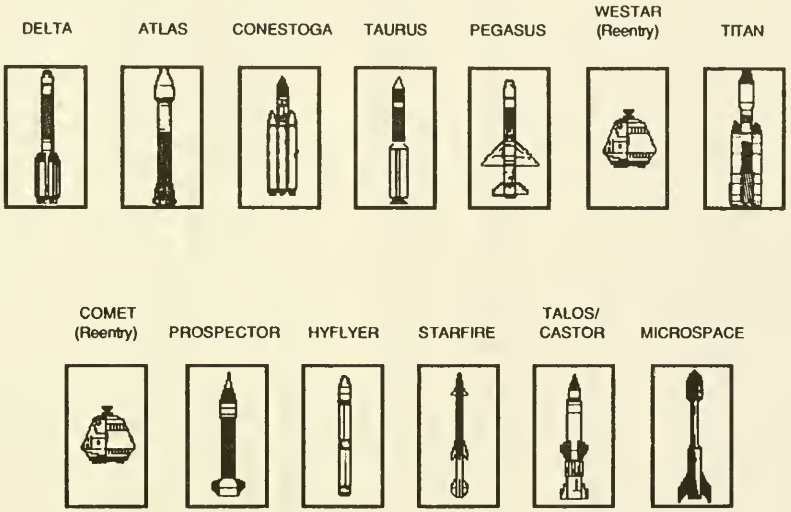
1. Licensing Operations ($800)

The licensing and use of new launch vehicles and concepts such as air launch systems is continuing. Various sea launch concepts are being developed. Current and planned vehicles are shown in Figure 1. Even traditional launch vehicles have new launch profiles and destinations, due in part to a growing demand for a wide range of spacecraft in low earth orbit, such as those involving communication constellations, microgravity research, remote sensing, and other scientific missions. The Federal Communications Commission has received 10 applications for Low Earth Orbit (LEO) communication constellations, some of which have already received an FCC license for demonstration and testing. These satellites will be placed in different orbits than past commercial payloads. The annual growth rate in the demand for remote sensing information is 30%, double that predicted in 1988. The Strategic Defense Initiative Organization (SDIO) has issued contracts for launches that are expected to be licensed commercial launches. The new vehicles proposed for use will require OCST safety review and approval. All of these missions involve launches requiring OCST to evaluate site/vehicle combinations not previously assessed. Moreover, extensive

FIGURE 1

VEHICLES REGULATED BY DEPARTMENT OF TRANSPORTATION

OCST



analyses will be required to assess potential collisions with other space objects and reentry risks resulting from many of the orbits involved.

Aside from the new vehicles and launch profiles for transportation from earth to space, microgravity research missions may include automated docking with reentry spacecraft; reentry vehicles placed into a wide range of orbits pursuant to a launch license are expected to be returning experiments and materials from space to earth. For example, by 1993, industry expects to operate the COMET reentry vehicle shown in Figure 2.

Although commercial launch sites have been in various stages of development for the past few years, OCST expects to be involved in the licensing of one or more in 1994. Commercial launch sites that are in the planning stages include fixed and mobile sites. Fixed commercial sites that are under various stages of planning and development vary from the use of existing launch locations and facilities (e.g., Spaceport Florida Authority and Alaska's Poker Flat Research Range) to completely new sites (e.g., Hawaii). By 1994, Hawaii will most likely have completed its EIS and permitting process, meaning that the site could be ready for development. Our analysis has indicated that the facility infrastructure required to conduct launches of small systems is less than that necessary to launch larger vehicles, thus it should be relatively easy for the site to support launches once the EIS is done. The interest in Hawaii we have seen from small companies indicates that it will likely be used once it is available. Additionally, Alaska's Poker Flat site is already an operational site and primarily would only need to address environmental issues to receive a commercial site license. Mobile launch concepts under development include the air-launch of a launch vehicle from an aircraft over any point on earth. OCST has been working with one launch company and the FAA concerning certification of an L-1011 to be used for air launches. The company has talked with OCST about the "autonomous range" it intends to use eventually, freeing the operation from the need for fixed range support.

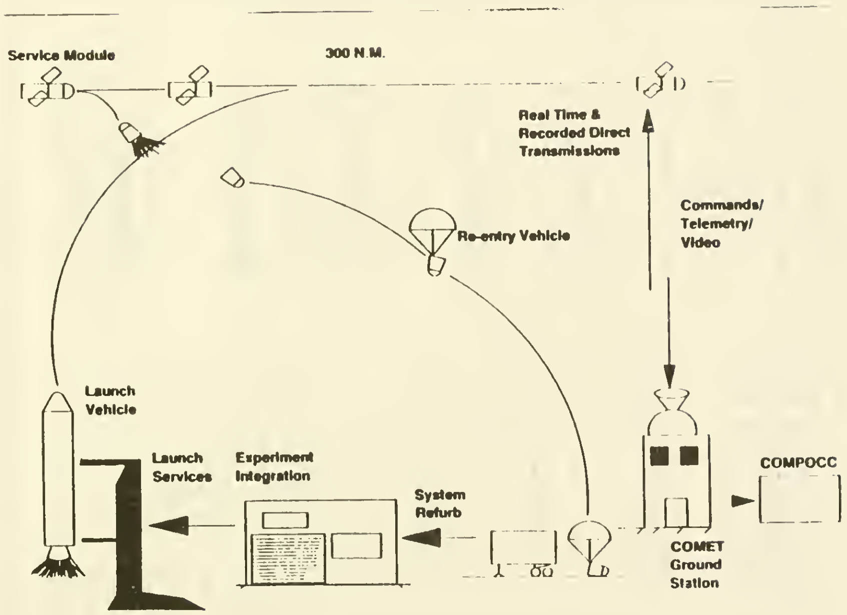
All of these approaches provide a new freedom to launch operators both for mission considerations and for moving away from dependence on established government ranges and imply a whole new approach to range safety and system requirements. OCST strives to regulate in an efficient manner in order to minimize required resources for both OCST and the regulated community, while allowing industry to innovate and remain competitive.

Recently, OCST has focussed on streamlining the administrative aspect of the licensing program, including:

- A system for tracking important milestones in individual license initiatives.

FIGURE 2

NEW REENTRY VEHICLE TECHNOLOGY FOR 1993



- Standard documents for many most licensing actions.
- An electronic license file structure for saving and retrieving license documents.
- Licensing Operations Standard Operating Procedure (SOP) to guide staff members working on licensing matters.
- A standardized methodology for Maximum Probable Loss (MPL) determinations of financial responsibility.

OCST will continue to refine its licensing process to enhance its ability to handle growing levels of commercial launch activity and increasingly diverse initiatives in an efficient manner. However, new and sometimes technically complex issues will be raised by the new launch systems, the on-orbit and reentry activities, and the commercial launch facilities. Thus, additional technical resources will still be required to support the evaluation and analyses for such things as support hardware, safety functions performed by personnel, and procedures. Evaluations of new concepts in launch sites such as air and sea launch platform systems and range-independent launch systems require a high degree of technical expertise.

OCST will also be analyzing and approving commercial support systems associated with launch sites such as tracking hardware, qualifications and training for flight safety personnel, and policies and procedures for flight and ground safety. Inquiries by several new launch companies regarding their concepts for new commercial sites indicate these launch sites will be driven by commercial requirements such as low cost and easy implementation and therefore will be much different from existing government sites in terms of the nature of equipment infrastructure and mode of operation.

2. Vehicle Operations Safety Review ($350)

The nature of the safety evaluations and analyses OCST must perform to ensure public safety started to change in 1992. Operations such as commercial COMET and WESTAR reentry vehicles, and the Pegasus launch vehicle dropped from a commercial L-1011 aircraft represent the beginning of such changes. OCST will be evaluating and approving applications involving safety-related launch and reentry vehicle systems. OCST's strong emphasis on performance requirements, rather than design standards, while fostering innovation and technological development sometimes requires greater technical resources to conduct safety assessments of untested concepts.

In some cases, key safety related systems will be analyzed and approved due to the need for greater depth of safety review or to allow flexibility to the system manufacturer. For example, industry has already contacted OCST regarding how Federal policies will impact their plans to develop range-independent flight safety systems, such as the use of Global Positioning System (GPS) tracking systems and flight termination systems that are automatic or off-site from the range. These new safety systems will not have the benefit of historical experience and testing programs of government ranges, and therefore will require OCST to examine the performance, reliability and quality assurance mechanisms associated with the design and production of these systems.

3. Inspections and Enforcement ($185)

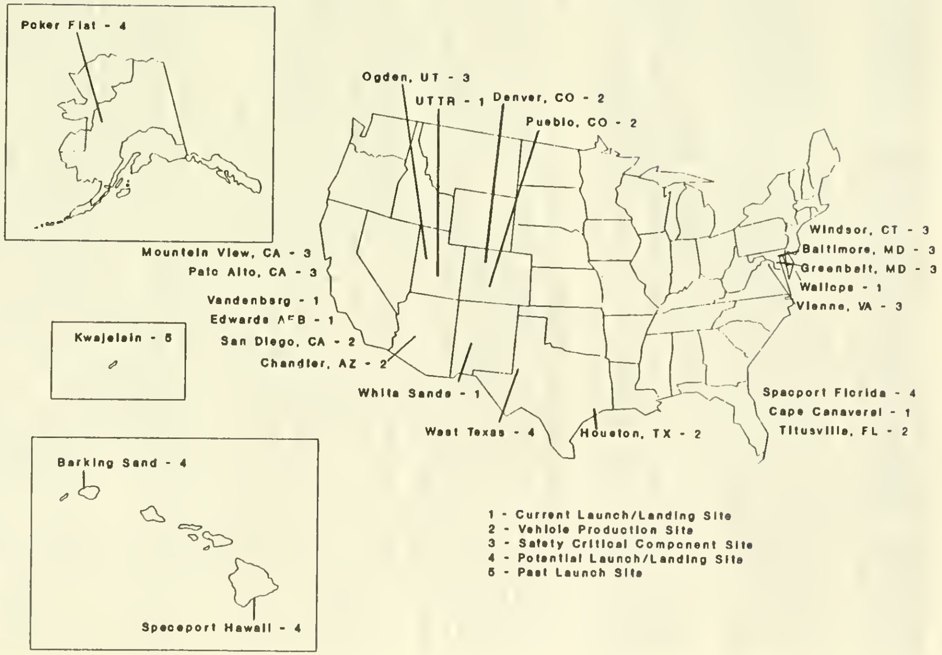
OCST monitors the activities of licensees. OCST licenses commercial launch and site operations based on the representations made by a commercial company in its application that demonstrate the company will operate safely. As OCST issues launch operator licenses authorizing the conduct of any number of defined launch operations over a period of time (e.g. two years), more emphasis must be placed on OCST's inspection program to ensure public safety. While a license signifies that OCST has evaluated and approved a company's operations, OCST must conduct periodic inspections to verify the representations made by the company in the application and monitor whether the company is operating within the terms and conditions of its license, and thus is operating safely. Additionally, licensees are required to submit certain documents, such as insurance certifications, as well as other information throughout the life of a license.

As part of the licensing inspections, OCST monitors key launch readiness meetings and launch countdown operations and inspects vehicle hardware and safety and quality assurance documentation. As licenses (multi-launch and site) are issued, more of OCST's resources will be devoted to compliance monitoring to ensure that the requirements of the licenses are met. Figure 3 shows the current locations that may require inspections. Compliance monitoring procedures and protocols may also be necessary to ensure that those safety aspects are verified while minimizing impact on the inspected party. As commercial activities move away from existing government sites, these commercial entities will not have the historical experience that has been developed by the government. Thus, it is necessary to monitor their performance more extensively than it has been necessary to monitor those safety services at Cape Canaveral, for instance.

If a company is not in compliance with its license, OCST may take enforcement actions against the licensee, such as suspension of the license or civil penalties. Even with the limited number of licensees, OCST currently finds that companies do not always comply with the terms and conditions of their license or are not operating within the representations made in their application. As the number of licenses increases, there will be greater

FIGURE 3

INSPECTION SITES



opportunity for licensees to purposefully or inadvertently ignore or violate the requirements placed upon them. Enforcement actions are nondiscretionary because they are the final incentive for compliance. They can be resource intensive.

For those systems where inspections become more routine, OCST will utilize contractor support to continue periodic monitoring of these systems. By taking the opportunity to inspect as many launch vehicles, payloads, operations, and facilities as possible on a single inspection trip, the inspection process is made efficient and effective while travel costs are controlled.

In addition to the added demands resulting from the issuance of launch operators licenses, inspections of commercial launch sites and vehicle safety approvals are expected to increase workload. Although no commercial launch site is licensed yet, the Office has conducted site studies for the States of Hawaii and Mississippi, and is conducting a joint EIS with Hawaii.

4. Accident/Incident Investigation Support ($65)

The National Transportation Safety Board (NTSB) will continue to be the lead investigating organization in most commercial launch accidents which affect public safety, i.e. those which involve a loss of life or substantial public property damage. Even when the NTSB leads, OCST will participate and in some cases may conduct investigations.

An "accident" has never occurred, but other mishaps do indeed take place. OCST assumes lead responsibility for investigating incidents which, although not accidents, potentially could have affected public safety, such as a malfunction of the flight safety system. OCST may also investigate other occurrences, including mission failures, or request to participate in a range operator's or commercial launch operator's investigation to ensure that public safety was not compromised. At a minimum, OCST monitors the progress of such investigations.

As a gauge of OCST's potential workload in this area, thirteen prelaunch and launch incidents have occurred between May 1989 and April 1993 that required OCST action. These events included the following eight mission failures: (1) a vehicle burning on the launch pad, (2) premature separation of the payload from the launch vehicle, (3) the failure of the payload to separate from the orbiting second stage, (4) the failure of a second stage resulting in flight termination action, (5) a guidance system failure also resulting in flight termination action, (6) another failure of a second stage again resulting in flight termination action, (7) a suborbital launch failure, and (8) subperformance of a first stage resulting in the placement of a satellite in a lower orbit than intended. The remaining five events involved potential safety issues associated with ground operations. They included failure of a vehicle to ignite on the pad, a fatality to a worker during tower refurbishment, damage to a satellite on the launch pad, damage to a vehicle during prelaunch testing, and an incident involving a launch abnormality currently being investigated by OCST and the National Transportation Safety Board.

There is greater public concern due to the variety and complexity of launch operations. Funding is required, therefore, for OCST to continue to develop its procedures and guidance for accident investigations, to include reentry operations and commercial launch facilities, and to provide technical support for conducting investigations. In addition as part of the post-license requirements, OCST evaluates and approves the licensee's own incident/accident investigation plan.

5. License, Inspection and Enforcement Information Systems ($100)

Since the scope of OCST's licensing, system safety approval, enforcement, and investigations has expanded rapidly, the Office requires new tools. These include tracking systems, databases, and software models.

OCST must track the status and critical milestones of projects. Both proposed and approved licensing actions have critical due dates for both OCST and the licensee. For example, failure of a licensee to obtain sufficient insurance can result in suspension or revocation of its license. As the number and types of licenses the Office issues increases, the number of activities to be monitored, tracked, and resolved also increases.

Databases order and cross reference a large number of topics. OCST utilizes a number of databases in the management of its activities, such as the Safety Database, which is a collection of 1600 safety-related documents, and an Accident Database which compiles space accident data. A system will allow the Office to store and organize documents, text, and mailing lists. Because of the size and scope of OCST's databases and tracking systems, upgrades of existing software and/or hardware will be necessary to reflect changes in workload and requirements needed to carry out OCST's mission.

The expanding complexity of commercial vehicle systems and operational approaches is also expected to expand OCST's need for in-house modelling. Evolving concepts and technologies will require the Office to perform various computer analyses on the risks of the specific operations proposed. For example, missions to low earth orbit, such as extended reentry operations and activities requiring constellations of satellites, will require the analysis of risks from vehicle delivery maneuvers as well as the satellite and debris population in the particular orbital regions transversed by the launch vehicle. Evaluation of new rocket propellants and fuels will require safety and risk analyses to determine their potential impact to the environment as well as potential impact to personnel. Some of the tools OCST currently uses in making risk assessments include software models that calculate flight dispersions, toxic dispersions, explosive effects on people and structures, casualty expectations, and cumulative and incremental effects on the population. Some of the advanced models are so complex that they require hours of processing time and significant amounts of processing capability to complete their tasks. Thus, it is essential for OCST to possess the capability of performing this kind of risk analysis.

Even more than the databases and tracking systems, the demand for highly accurate and sophisticated software models to be used in the analysis of proposed licensing actions will require an increase to OCST's existing computer capabilities to perform complex engineering and simulation safety studies, and to exchange and analyze the large data bases used to monitor space debris. OCST will primarily be gaining this analysis capability through enhancements of the OCST computer system and a heavy reliance on the use and modification of existing software models. If the upgrade of existing models are insufficient, development of new software models may be required. Cost reimbursement for some outside computer services/time may also be necessary.

B. REGULATORY AND SAFETY ANALYSIS $1,125

Objectives: To establish the body of knowledge necessary to support the requirements of the Commercial Space Launch Act and amendments thereto; to develop effective and efficient safety standards, evaluation and approval processes, and regulations for safe commercial operations, environmental concerns, and orbital safety; and to provide guidance to the commercial launch industry concerning regulatory aspects of new launch, payload, and safety support concepts.

Accomplishments:

In FY 1992, OCST completed its initial analyses of personnel qualifications for safety-critical launch and reentry operations, which will provide concrete examples of how commercial launch and site operators may handle safety critical functions.

In FY 1993, OCST plans to complete license evaluation criteria for critical safety personnel supporting operations taking place from non-government (commercial) sites. In FY 1992, OCST began to develop facility design and flight safety standards for commercial launch ranges.

In FY 1993, OCST plans to complete its analyses of safety criteria for commercial vehicles designed to perform controlled reentry and maneuvering back to earth.

In FY 1993, OCST plans to complete its development of safety criteria for flight termination systems for commercial launch vehicles.

In FY 1993, OCST research will continue to identify factors that affect the risks posed by commercial payloads. This research will assist OCST in managing risks and evaluating launch applications.

In FY 1993, OCST published a Final Programmatic Environmental Impact Statement for Reentry Vehicles, as well as a joint Environmental Impact Statement with the State of Hawaii for the Hawaiian commercial launch facility.

In FY 1993, OCST plans to complete development and evaluation of traffic modelling that characterizes the space environment and the risks associated with commercial space transportation activities.

In FY 1993, OCST research will evaluate factors that affect risks in space and determine their relationship to design and operational practices. This research will lead to identification of options that commercial operators can use to mitigate risks posed by their operations, including minimization of orbital debris, and options for risk management strategies which OCST can use to manage the risks of the increasing and diversifying commercial space transportation activities.

Additional plans for FY 1993 include:

- A Document Circular System to store, update, distribute, and track publicly available documents.
- Development of a detailed enforcement program.
- Regulations restructuring the license process, including site and long-term launch licenses.
- Vehicle design and approval procedures, and/or standards for commercial launch ranges and certain on-orbit activities.
- Regulations regarding financial responsibility.
- Criteria for determining the adequacy of tracking, telemetry, and other vehicle/site requirements in support of commercial launch and recovery activities.

FY 1992 & FY 1993 Costs: $993 & $1,205

1. Evaluation Criteria and Standards for Commercial Operations ($650)

The commercial transportation industry has been in a state of steady evolution since 1984. New technologies and methods are continuously being implemented, as illustrated by the following examples:

- Launch Vehicles: Vehicles such as EER's *Conestoga*, AMROC's *HyFlyer*, Orbital Sciences Corporation's *Pegasus*, and International Microspace's *Orbital Express* utilize new propulsion, guidance, and structural systems. Major launch companies continually redesign their existing vehicles to increase their competitiveness by incorporating more advanced technologies, the Atlas IIAS and Delta 7925 being two examples.

- Launch Modes: Launches are no longer limited to a land-based pad, with launches from aircraft already occurring and sea-based launches planned.

- Payloads: Under the CSLA, OCST is responsible for determining whether payloads not otherwise licensed by the FCC or Department of Commerce would jeopardize the public health and safety, safety of property, or other U.S. interests. Experimental progress, has spawned a number of companies offering on-orbit materials processing and biological services. Reentry systems that return experiments and materials to earth or dispose of non-operational spacecraft are already in development. Constellations of low-earth orbiting satellites for mobile communications are planned.

- Commercial Launch Sites: Under the CSLA, OCST is responsible for licensing the operation of commercial launch sites. New launch facilities and sites are being developed at locations not previously used for launch operations.

To fulfill its mandate under the Commercial Space Launch Act, OCST is utilizing a multifaceted regulatory program to ensure that changes in the industry contribute both to the protection of public safety, and industry growth and competitiveness. OCST's research is designed to identify and gain knowledge on new developments, identify the safety issues the new developments present, and examine different regulatory mechanisms appropriate for each development. Results of OCST's analysis include these two examples:

- Flight Termination Systems (FTS) may not significantly reduce risks for certain space transportation vehicles over major portions of their flights, and may actually create greater hazards. Tracking research is yielding similar conclusions.

- If not properly managed, planned reentries of launch vehicle components in order to reduce space object population may create higher risk for the public than the original launch of the entire vehicle and payload.

Although OCST research continues to support licensing actions, standards development will be a focus in 1994. In particular, the regulatory and safety analysis envisioned for 1994, include the establishment of qualification and licensing criteria for safety personnel employed by the licensee, licensee policies and procedures, and safety related hardware systems.

a. Commercial Operator Qualifications [$150]

The adequate performance of many key safety functions by commercial launch or site personnel is imperative in order to ensure public safety in most launch activities. These functions include, but are not limited to, those responsible for flight termination, flight analyses for determining vehicle destruct parameters, or issuing commands to initiate key events such as reentry, etc. The qualificaticns of such personnel must be assessed to ensure the public will be adequately protected.

Discussions with industry have shown that industry sees a competitive benefit from standardization, and has already begun to move in that direction. For example, a community college near Kennedy Space Center has set up an "Institute For Space Technology," which provides NASA with a pool of qualified individuals to support some of its operations at the Kennedy Space Center.

The benefits of standardization to industry are great. As stated by a company in a response to the National Space Council's Space Exploration Initiative Outreach Program, the benefits include "an opportunity to avoid costly duplications of effort in maintaining safety and reliability standards." The company adds that the value goes beyond a reduction in the resultant training costs and hardware production costs. "The value will be most evident in the changes in industry philosophy, methodology and procedures." As pointed out in the response, "Federal recognition is essential for standardization, paperwork reduction and process streamlining." The benefits to OCST are also great. Before the Office issues a license to a company to conduct space transportation operations, it analyzes the company's personnel qualifications in all areas that could effect public safety. By standardizing personnel qualifications wherever appropriate, the Office would streamline the evaluation process across the entire spectrum of its licensing operations.

The Office in the past has studied what particular jobs would be appropriate for standardization, the skills required, and for each job category the basis for implementing the standard, e.g., whether it should be the completion of a formal training program, the passing of a test, the need to have certain job experience. The initial research was largely complete by 1993. However, the industry is now at the point where job categories are better defined, requiring more detailed research. In the short term the Office will likely concentrate on range safety personnel that ensure that launch vehicles are safely launched into space. The emergence of commercial spaceports means that those individuals are not employees of federal range operators with established training programs. In FY 1994, OCST will likely define standards and their approval criteria and will develop a detailed program to implement any standards that require regulatory initiatives.

b. Safety Operations, Procedures and Practices [$150]

The Office must consider safety-related operations and procedures over a wide variety of space transportation activities. Commercial operations now encompass a number of different launch sites, launch vehicles, and launch modes (such as air-launched vehicles). Non-government commercial launch ranges will employ unique range safety procedures differing by launch site and vehicle type. The delivery of payloads to desired orbits require safety procedures to protect existing satellites and to reduce the possibility of generating orbital debris. Reentry vehicles do not rely on Flight Termination Systems, making the procedures used to perform the complex maneuvers necessary to bring them from space back to earth critical to ensuring the safety of the public.

To establish baselines for standards, and to aid in its assessment of safety policies and procedures proposed by industry for commercial activities, OCST will require research that will develop methodologies for evaluating the adequacy of safety procedures. Failure of OCST to develop the means to properly evaluate proposed safety procedures designed to eliminate or minimize risk to the public could have significant consequences.

c. Safety and Reliability of Critical Safety Systems [$250]

OCST's research will provide the basis for OCST's evaluation, analysis and approval processes for license applications, OCST's guidance to industry, standards, and regulations that govern the design of commercial space transportation hardware systems. The hardware systems that affect the safety of commercial space transportation activities include vehicles, vehicle systems, and launch site equipment. For example, the Flight Termination Systems (FTS) approach to managing risks, which destroys errant expendable launch vehicles, includes critical airborne hardware systems as well as ground-based tracking and display systems, all of which must work together to achieve safety.

OCST will conduct risk and dispersion analyses, investigate system failure modes, and will conduct cost-benefit analyses to develop evaluation criteria and requirements for commercial manufacturers and operators. Without clearly defined requirements by the Federal government early in the hardware development process (perhaps 2-3 years prior to use), industry may lose time, money, and its competitiveness due to design changes late in the process necessary to meet acceptable public safety levels.

Public safety is much more dependent on the reliability of a complex set of system hardware than every before because of:

- On-board navigation and flight termination systems utilizing the Global Positioning System (GPS) and fiber optic components radically different from systems used by existing government ranges.
- New launch and design concepts, including a system for safely returning the vehicle and the payload to the launch site given a malfunction during ascent.
- Manufacturing processes possibly creating unique hazards during on-orbit and reentry operations.
- Profit-driven commercial facilities, making it likely that both infrastructure and operations will differ from those at Government ranges.

Thus, OCST will focus its research on these and other concepts where the public safety relies on the safety and reliability of complex system hardware.

d. Commercial Payload Safety [$100]

Under the Act, OCST must evaluate and approve commercial space transportation payloads that are not licensed or authorized by another U.S. Government agency. It must ensure that the launch of these payloads will not jeopardize public health and safety, safety of property, or any U.S.

national security or foreign policy interest. OCST's research in this area is directed at developing the knowledge base to determine possible impacts of such payloads while they are being transported to their preplanned orbital positions or being returned to an earth surface recovery site.

Many commercial spacecraft and payloads that will be developed by industry may contain toxic, radioactive, or other hazardous materials that could endanger the public during the transport of these payloads to and from space. In space, structures and systems that support the payloads may also have long term impacts on safety of property in space.

Additionally, as commercial payloads and their functions become more sophisticated, complex on-orbit activities will be conducted, including maneuvers and operations associated with reentry, docking, fluid transfer between spacecraft, and power transmission. These create a need for additional understanding of risks and the factors that affect safety. Failure of a spacecraft or an explosion may create orbital debris which poses risks to other spacecraft on orbit.

OCST's analysis will provide an extensive understanding of the interrelationships between the payload, the spacecraft and launch vehicle, and public safety, and will define the factors that determine whether a hazard exists. OCST will also be researching approaches to regulate these activities to the extent necessary to protect the public without unnecessarily limiting the opportunities for future growth.

2. Environmental Issues ($225)

OCST's involvement in this area is mandatory under law. In particular, OCST is responsible for compliance with the National Environmental Policy Act (NEPA), and the Clean Air Act of 1990. OCST's licensing process is a major Federal action subject to the requirements of NEPA, and affects primarily the licensing of commercial space launches and the operation of commercial launch sites, and to some extent new payloads. In implementing NEPA, OCST complies with the Council on Environmental Quality's regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508) and DOT's Order on considering environmental impacts (DOT Order 5610.1C).

Proposed commercial launches and facilities require the preparation of environmental assessments or environmental impact statements (EA/EIS's). In most cases, the cost burden of developing and preparing environmental data and documentation falls on the applicant. OCST should soon be completing a joint Federal/State EIS with the State of Hawaii for a proposed commercial rocket launching facility, and this multimillion dollar study has been funded almost entirely by the State.

Because of the positive impacts of a commercial launch facility on local economies, other state governments such as Alaska are showing interest. A similar arrangement to that achieved with Hawaii will most likely have been initiated with Florida and other proposed commercial launch sites. Each proposed facility will require assessment of environmental impacts, and a number of issues may arise.

In some cases, OCST develops baseline documents such as Programmatic EA's in a particular area of commercial space transportation because the study applies to an entire segment of the industry, and no single company should bear the cost. Common elements are identified, their potential impact on the environment analyzed, and the results documented for use in future license application evaluations. Examples of this include the "Programmatic Environmental Assessment of Commercial Expendable Launch Vehicle (ELV) Programs" in 1986, and the "Programmatic EIS for Reentry Vehicles (Rvs)" in 1992.

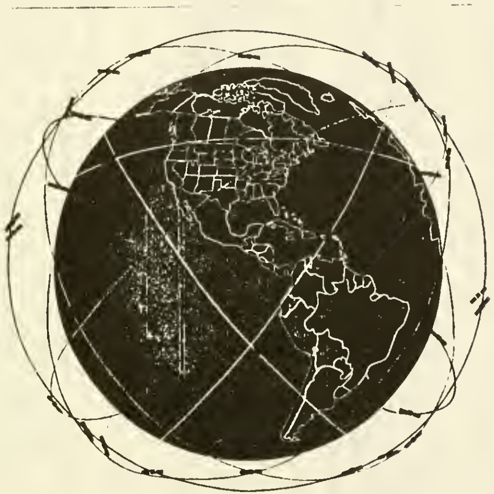
As the industry and technology continues to evolve, OCST will continue to develop resources such as the Programmatic EA and the Reentry Vehicle EIS and other baseline documents to aid in its regulatory duties. In addition, research will be necessary to address upcoming issues such as the impacts of commercial launch operations on the ozone, and impacts of new propellants and technologies as they are developed and proposed for commercial use.

3. Orbital Safety ($250)

The launch activities that OCST has overseen in the past have been traditional launches to geotransfer orbit and suborbital launches. Potential hazards to the public increase as the diversity the activities in space increase. For example, by 1993 vehicles are expected that will maneuver in space and return to earth. These vehicles may land in the continental U.S. near population centers several times a year, potentially creating serious risks to the public if not well managed. Industry will also have launched the first of the low earth orbit communications satellite constellations which the Federal Communications Commission began processing in 1992. These constellations could soon consist of as many as 200 satellites in low earth orbit, and require relatively frequent replacements. One such system is shown in Figure 4. This translates directly to magnitude increases in launches with new vehicles, new types of operations, and the increased use of certain regions of space. Other space transportation vehicles will fly through these regions to deliver their payloads, thus requiring OCST to manage the associated risks.

FIGURE 4

A LOW EARTH ORBIT COMMUNICATION CONSTELLATION
WILL REQUIRE NUMEROUS LAUNCHES



Because OCST must eventually approve any commercial vehicle or transportation operation, industry continually consults with OCST to determine how their space plans and/or concepts will be affected by Federal regulatory processes. It is typical that industry will consult with OCST at least 2-3 years prior to finalizing its proposals and applying for licenses. Thus, OCST's risk management program and licensing process must not only meet the needs of the current space activities, but OCST must also be in a position to guide industry's future with Federal policies and regulatory requirements that will encourage growth while maintaining public safety. For example, the satellite industry has already consulted with OCST regarding requirements for launch operators to deorbit expended launch vehicles to minimize risks in space and free space for other uses. Such measures may in fact increase risks to the public on earth, and therefore need to be managed carefully.

In order to develop the appropriate strategies and regulatory framework to ensure public safety, OCST must understand the environment and the risks in space posed by commercial launch activities. OCST's research is directed at attaining a comprehensive understanding of the environment (i.e., space traffic) in which launch vehicles travel, the interaction between launch vehicles and this environment, and the risks associated with these launch operations.

The greatest risk to spacecraft and launch vehicles in space is the presence of debris in orbit. Much of this consists of, or has been caused by, spent rocket bodies. Thus, OCST has a great interest in assessing those risks. Although OCST has been involved with a number of interagency groups that address this issue, including the Interagency Working Group on Orbital Debris, OCST has not had the resources to adequately address these risks. The American Institute of Aeronautics and Astronautics recommends that OCST take a more proactive role in this area.

The approaches and goals of OCST's research are unique to commercial space transportation activities, similar in character and purpose to research conducted by the U.S. Coast Guard or Federal Aviation Administration for marine and air safety. Most safety research conducted by other space agencies, such as NASA or DOD, tends to be program specific and deals only with the orbital debris aspect of space safety. OCST will incorporate the data produced by other agencies' research efforts for specific applications, and perform research necessary to develop a coherent strategy for managing commercial transportation risks "from the top down".

National Space Policy states that all space sectors will seek to minimize the creation of [orbital] debris, but also recognizes that action should be taken in a judicious manner in light of international competitiveness and industry viability implications. Thus, OCST's research will develop strategies to evaluate traffic in space (e.g., design requirements, operating procedures), examine costs and benefits to society, and assist OCST in determining an appropriate framework (e.g., voluntary standards, Federal regulations) to ensure public safety without undue burden on the industry.

C. DOMESTIC POLICY ANALYSIS $398

Objectives: To analyze and facilitate policy initiatives to foster commercial space transportation by the U.S. private sector, in consonance with the Commercial Space Launch Act, as amended; to encourage private sector responsibility for development and enhancement of national space transportation capability; to identify national commercial space launch vehicle and infrastructure needs and to assess alternative means of meeting those needs; to participate actively in all national policy, strategy or guidance deliberations affecting the commercial space launch industry, including those led by the National Economic Council and the National Security Council; to carry out DOT's responsibilities as lead agency for commercial space transportation policy; to prepare position papers on policy issues for use in testimony, speeches, and regulations; to support the policy activities of the Commercial Space Transportation Advisory Committee (COMSTAC), the premier space transportation advisory group; and to conduct evaluations of regulatory actions under consideration by OCST.

Accomplishments:

The Office continued to play an important role in the formulation of policies affecting the U.S. commercial space transportation industry. These efforts included evaluations of regulations dealing with financial responsibility and the licensing process. OCST's vigorous involvement in the interagency process resulted in the inclusion of an important policy element in the Presidential National Space Launch Strategy, namely that the potential economic impacts on industry, the industrial base, competitiveness, and the public interest be among the factors considered in evaluating disposition options for excess ballistic missiles. OCST promoted fair trade relationships through its participation under the leadership of the Office of the U.S. Trade Representative in negotiations with the European Space Agency (ESA), the Russian Space Agency, and the People's Republic of China (PRC). The basic objective was to establish a "level playing field" such that the U.S. launch industry not be harmed by unfair competition from either subsidized foreign or non-market economies.

At the National Space Council, OCST participated on behalf of the Department of Transportation in the development of policies affecting the commercial space launch industry. In these efforts, OCST provided a commercial space transportation perspective otherwise not represented by the participating agencies. OCST also negotiated with other agencies to resolve differences among recommended policy positions.

On a general level, DOT's representation on the National Space Council helped establish a policy framework that created a positive business environment for commercial space.

OCST has also been actively involved in the formulation of government space policy regarding a number of ongoing issues, including nuclear power and propulsion in space, single stage to orbit vehicle concepts and research, orbital debris, LANDSAT, the Earth Observing System, the National Aerospace Plane (NASP), the Space Exploration Initiative, UN space coordination, and other issues on which Federal policy is being developed. In each of these activities, OCST has sought to affirm existing statutory policies to promote, encourage, and facilitate the U.S. commercial space transportation industry. In particular, OCST has encouraged federal agencies to take account of these policies in their research, development, and procurement activities. Such recommendations influenced the Joint Program Office for the National Launch System (now defunct) in its decision to include a more commercially-oriented vehicle in its program development plans. OCST has also encouraged Federal agencies to purchase space goods and services, including space transportation, on a commercial basis to the maximum feasible extent. OCST has also encouraged Federal agencies to consider potential commercial spinoffs and needs in their procurement processes.

Furthermore, OCST serves as the primary government resource for information regarding the demand for commercial launches for communications, materials processing, remote sensing, navigation, position location, science, and other payloads; the supply of commercial launch services in the domestic and international markets; summaries and analyses of policies pertaining to the U.S. commercial space launch industry; assessments of the international competitiveness of the U.S. commercial space transportation industry; and the infrastructure needs of the U.S. commercial launch providers. This information is provided to companies, study groups, and other agencies on a routine basis, both in the form of one-time and ongoing reports.

OCST has a vigorous research program underway to underpin such policy development efforts. These research activities include economic analyses of the fair market value of excess government assets, long-term launch market projections, the assessment of launch infrastructure needs, and the development of a data base on immediate and long-term foreign entities in the international launch market. Other important efforts include assessment of the Russian space industry and the potential impact of its participation in the world market. Another important effort is analysis of pricing behavior by China and Russia in the international commercial space launch market.

OCST also maintains close liaison and provides support to the Congressionally chartered Commercial Space Transportation Advisory Committee (COMSTAC). This enhances OCST's ability to determine industry concerns on relevant issues and to take them into account during policy development.

In terms of launch technology development initiatives, OCST worked closely with NASA and DOD staff engaged in Single Stage Rocket Technology (SSRT) activities to urge continuing attention to the interests and concerns of the U.S. commercial space transportation industry regarding improvements in design, production, and launch of current and future vehicles. OCST also participated actively in the formulation of NASA's component technology development plan designed to enhance the efficiency and competitiveness of the current fleet of U.S. ELV's. For example, OCST participated in meetings to assess government and industry needs. OCST also coordinated discussions between NASA and industry regarding a draft report for the component technology plan. At NASA's request, OCST coordinated a formal COMSTAC review of the plan and final report, which resulted in a nearly unanimous vote of approval. This level of support and commercial sector involvement led to enhanced political viability both within NASA and in deliberations in Congress.

With regard to orbital debris, OCST participated actively in interagency policy development activities. OCST successfully urged the U.S. delegation to the Consultative Committee on International Radio (CCIR) to oppose Japanese and British efforts to impose a rigid regulatory regime that would have adversely affected the emerging LEO communications sector.

With regard to nuclear power and propulsion in space (NPPS), OCST promoted efforts by an interagency committee to understand the policy implications of the benefits and costs of NPPS. OCST also sought to prevent premature foreclosure of potential commercial applications of NPPS.

OCST successfully worked with the Department of State, the National Telecommunications and Information Administration, and the Federal Communications Commission to urge the U.S. delegation to the World Administrative Radio Conference to advocate the allocation of sufficient spectrum to support satellite telecommunications in low earth orbit. This spectrum was indeed allocated as advocated early in 1992.

OCST conducted rigorous economic impact evaluations of regulations and rules affecting the commercial space transportation industry. OCST conducted such evaluations for regulations dealing with financial responsibility and the licensing process.

Under the Commercial Space Launch Act, as amended, Federal agencies are required to consult with the Secretary of Transportation in establishing amounts to be paid for launch property or services. To enable the Secretary to fulfill these statutory responsibilities, OCST developed a methodology to assess fair market value of excess government space assets made available to the private sector. Using this methodology, OCST made a number of specific fair market price assessments for individual cases involving the sale of excess ballistic missiles and space launch components to ensure that appropriate prices were charged and that no serious adverse economic impacts were suffered by the industry.

FY 1992 & FY 1993 Costs: $587 & $387

1. Domestic Industry Policy ($298)

OCST is responsible for supporting the Secretary in implementing the Department of Transportation's lead agency responsibilities for developing, coordinating and articulating Federal commercial space transportation policy. These lead responsibilities are assigned to the Department by the President's National Security Directive on Space Policy. The primary forum for OCST's policy role is the National Economic Council, where the Department is represented along with the Departments of State, Commerce, Defense, Treasury, and Justice, the Office of Management and Budget, the National Aeronautics and Space Administration, and the Office of the United States Trade Representative.

In a National Economic Council working group, OCST has led the effort to enhance the international competitiveness of the U.S. launch industry through lower cost and more reliable launch vehicles and improved infrastructure. These efforts are focused on making improvements to existing vehicles and developing new vehicle concepts, such as those based on the Single Stage Rocket Technology program with the Strategic Defence Initiative Organization. OCST has been working with NASA and DoD on the proposed component technology program. Also, the Department has promoted the policy of active consideration by U.S. agencies of commercial space launch needs when making decisions on improvements to national launch vehicles and infrastructure. The Department has also strongly supported the maximum feasible use of commercial launch services by the U.S. Government, commercial access to government launch facilities, and other issues important to the commercial sector.

OCST participates in policy development activities of the National Economic Council on matters relating to the commercial space launch industry. It was an important contributor to the Commercial Space Launch Strategy, the Commercial Space Policy

Guidelines, the National Space Launch Strategy, and the Space Nuclear Power and Propulsion Policy Statement. OCST is actively involved in current national space policy deliberations on global change and remote sensing. OCST's efforts have included the development of substantial elements of basic strategies and policies, analysis of data, drafting and review of background papers for the National Economic Council and the National Space Council, participation in extensive interagency negotiations, and drafting policy documents at the National Space Council.

The growing participation of the commercial space transportation industry in the global launch market is raising issues involving the national security and foreign policy implications of commercial negotiations, which require substantial OCST representation to ensure that U.S. economic and commercial interests are considered.

As discussed earlier, the Department has also coordinated vital industry studies on the serious need for improved launch vehicles and infrastructure. These studies were conducted at DOT's request by the Commercial Space Transportation Advisory Committee and the Aerospace Industries Association. OCST also sponsors and supports studies of industry growth and market trends to determine the adequacy or shortcomings of government regulatory policy. OCST also assesses the economic issues associated with the possible disposition of excess and surplus government launch assets, including missiles. All of these studies are provided to the National Economic Council in various space advisory groups.in support of policy initiatives.

The need for regular participation in National Economic Council and National Security Council policy formulation efforts will continue for the foreseeable future.

2. Regulatory Impact Analysis ($100)

As a result of its statutory regulatory responsibilities, OCST is required to analyze the economic impacts of proposed regulatory actions on all entities potentially affected by such actions. The growth of the commercial space transportation industry to encompass new activities such as reentry vehicle operations and the development of commercial launch facilities drives the need for regulatory initiatives. However, it is essential that regulatory policy designed to protect the public interest does not impose needless, inequitable barriers to entry and operation for the industry.

OCST has completed regulatory impact analyses of user fees, financial responsibility, and licensing regulations. As new regulatory issues emerge, OCST will conduct rigorous analyses to ensure that regulation of the industry is no more extensive than required to protect the public interest.

D. INTERNATIONAL TRADE MONITORING AND POLICY ANALYSIS $80

Objectives: To monitor and assess the performance, reliability, availability, and price of U.S. and foreign launch services in order to gauge the international competitiveness of the U.S. commercial space transportation industry; to develop policy initiatives to achieve equitable international accords on space launch trade; to provide a commercial perspective in U.S. policy development affecting national security and foreign policy implications of commercial space launch transactions; and to participate actively in all national policy, strategy or guidance deliberations, both domestic and international, affecting the U.S. commercial space transportation industry.

Accomplishments:

In the context of its statutory mandate to promote, encourage, and facilitate the U.S. commercial space transportation industry, OCST was extensively involved in promoting fair trading relationships with other members of the international market for launch services. In particular, it provided data, technical analysis and policy recommendations for the U.S. positions, and actively participated as a principal in three USTR-led negotiations: "rules of the road" negotiations with the European Space Agency; negotiations with the People's Republic of China (PRC); and negotiations with the Russian Space Agency. It chaired the Working Group on Information for the Trade Policy Staff Committee to assess compliance of the PRC with the U.S.-PRC agreement on commercial space transportation. OCST also conducted research to assess the policy ramifications of emerging commercial opportunities and pitfalls in the former Soviet republics for the U.S. space transportation industry.

OCST successfully argued for continued restrictions on Russian access to INMARSAT launches in order to avoid predatory pricing and unfair trade practices. (Russia was given access to the launch as a one-time exception to existing policy.)

FY 1992 & FY 1993 Costs: $0 & $78

Development and Implementation of International Launch Services Trade Accords ($80)

OCST provides extensive support to the Secretary and Deputy Secretary in implementing the guidance in the Commercial Space Launch Strategy, which calls for the development of international principles of free and fair trade in commercial launch services. Such principles are essential to the viability of the U.S. commercial launch industry, particularly as international competition increases in the launch market in the next few years.

OCST chairs the Working Group on Information, an interagency committee established by the implementation plan for the Memorandum of Agreement (MOA) between the Government of the United States of America and the Government of the People's Republic of China (PRC) Regarding International Trade in Commercial Launch Services. OCST performs a majority of the analyses and administration in the monitoring and assessment effort. Monitoring efforts will continue for the remainder of the MOA, and for any subsequent MOA's. The Department's role in commercial space transportation and its success in monitoring the US-PRC Memorandum of Agreement have established it as the lead agency for monitoring responsibilities with regard to any launch services agreements reached with Europe, Russia, Japan, Australia or other countries.

OCST has been a lead participant in developing principles and guidelines as well as transition arrangements that will be contained in a trade agreement with Russia. OCST carries out all tasks and responsibilities for international trade monitoring and policy analysis and formulation regarding the competitiveness of the U.S. commercial space transportation industry in the world launch market.

E. PROGRAM AFFAIRS $78

Objectives: To support the growth and international competitiveness of the U.S. commercial space transportation industry; and to demonstrate here and abroad that the U.S. space transportation industry has the full confidence and backing of the U.S. government in its commitment to provide timely, efficient and reliable space transportation services to domestic and international customers.

Accomplishments:

OCST continued its program of support and representation for the U.S. commercial space transportation industry during International Space Year (ISY 1992), participating in special ISY 1992 activities along with its full schedule of domestic and international conferences, exhibits and symposia. This included participating in and exhibiting at the World Space Congress held September 1 through 4 at the Washington Convention Center.

The Office continued its close liaison with the industry, working primarily with the Commercial Space Transportation Advisory Committee (COMSTAC). The COMSTAC has become increasingly recognized within the space community for the authority and credibility with which it functions, demonstrated in part through its reports to and recommendations for the Secretary of Transportation. For example, the report, Research & Technology Program for Enhancing the Competitiveness of the Current U.S. Expendable Launch Fleet, April 1992, assessed the needs of the

U.S. commercial expendable launch vehicle industry for research and technology development. A COMSTAC Task Group recommended that U.S. policy should direct that surplus strategic assets not destroyed by the U.S. Government not be used for any commercial purposes.

The educational activities of OCST included a program to encourage the increase in the number of women, minorities and disadvantaged individuals in the transportation work force. Working with both public and private institutions, the Office promoted the connection between educational achievement, particularly in math and science, and future employment in exciting and rewarding fields such as commercial space transportation.

FY 1992 & FY 1993 Costs: $66 & $77

1. Industry Activities ($64)

To continue to meet its statutory responsibility to promote and facilitate U.S. commercial space transportation, OCST will participate, as appropriate, in conferences, seminars, exhibitions and symposia. The Office will update its printed and audiovisual materials to reflect new technologies and developments in the space transportation field and to emphasize U.S. determination to remain a leader in the highly competitive international space transportation sector. As the industry grows and international competition intensifies, OCST will intensify its efforts to demonstrate our government's commitment to this essential activity.

As the space transportation industry matures and expands, it is doubly important that the Office remain in close touch with the industry. In an industry dominated world-wide by governments and government affiliated entities, it is essential that the U.S. Government support our industry as an international competitor, particularly since U.S. launchers are still largely dependent upon U.S. Government launch facilities.

As the sponsor of COMSTAC, the principal industry group dealing with space transportation issues, the Office coordinates its activities and provides staffing and support. COMSTAC members are appointed by the Secretary and include top officials from the major segments of the commercial space transportation industry, comprised of launch companies, satellite operators, and financial and insurance firms. Although COMSTAC does not exercise program management or regulatory development responsibilities and makes no decisions directly affecting the programs of the Office, it serves as a forum for the discussion of issues involving the relationship between government and industry and advises the Secretary on space transportation issues.

2. Public Liaison Activities ($14)

Historically, a significant portion of U.S. launches and their payloads have been by foreign governments or organizations contributing substantial sums to the U.S. balance of trade, and our commercial space capabilities are considered a strategic asset in national defense planning. Using the news media, various available forums, and printed and audiovisual materials, OCST will continue to stress these important aspects of this industry, as well as respond to all queries from the news media, Congress and the public. As the range of activities conducted in space broadens and new vehicles and services come to market, there is a need for additional communication activities and materials, as well as updating those in use.

OFFICE OF THE SECRETARY

PAYMENTS TO AIR CARRIERS

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69–0150–0–1–402	1992 actual	1993 est.	1994 est.
Program by activities:			
10.00 Section 419 subsidy (total obligations) (object class 41.0)	1922	2274	....
Financing:			
21.40 Unobligated balance, start of year	–4196	–2274	....
24.40 Unobligated balance available, end of year	2274	....	....
40.00 Budget authority (appropriations).	0	0	.....
Relation of obligations to outlays:			
71.00 Total obligations	1922	2274	....
72.40 Obligated balance, start of year	12844	10253	....
74.40 Obligated balance, end of year	–10253	....	....
90.00 Outlays	4513	12527	....

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

PAYMENTS TO AIR CARRIERS

PROGRAM AND PERFORMANCE

The Secretary of Transportation, through powers of delegation and review, administers the section 419 subsidy program, which was added as part of the Airline Deregulation Act of 1978. Subsidies under this program are paid to airlines--primarily commuter carriers. Beginning in 1992, this program is funded out of the Airport and Airway Trust Fund.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

COMMISSION ON AVIATION SECURITY AND TERRORISM

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69–1850–0–1–407	1992 actual	1993 est.	1994 est.
Relation of obligations to outlays:			
71.00 Total obligations	63	4	....
72.40 Obligated balance, start of year	–4	....	....
74.40 Obligated balance, end of year	–14	....	....
90.00 Outlays	45	4	....

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE SECRETARY

COMMISSION ON AVIATION SECURITY AND TERRORISM

PROGRAM AND PERFORMANCE

The Commission on Aviation Security and Terrorism reviewed and evaluated policy options in connection with aviation security with particular reference to the destruction on December 21, 1988, of Pan American World Airways Flight 103. The Commission was terminated in 1990.

Intragovernmental funds:

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

WORKING CAPITAL FUND

Necessary expenses for operating costs and capital outlays of the Department of Transportation Working Capital Fund not to exceed [$93,000,000] *$93,108,000* shall be paid, in accordance with law, from appropriations made available by this Act and prior appropriations Acts to the Department of Transportation, together with advances and reimbursements received by the Department of Transportation. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

WORKING CAPITAL FUND

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69-4520-0-4-407		1992 actual	1993 est.	1994 est.
	Program by activities:			
	Operating Expenses:			
	Printing and graphics activities:			
00.01	Direct operating expenses	18985	19420	19841
00.02	Overhead expenses	1451	997	1110
	Support services activities:			
00.10	Direct operating expenses	23523	31962	19727
00.11	Overhead expenses	1447	1375	895
	Library services:			
00.20	Direct operating expenses	2337	2495	2552
00.21	Overhead expenses	179	128	143
	Transportation computer activities:			
00.30	Direct operating expenses	22578	32322	44133
00.31	Overhead expenses	1269	1273	1699
00.91	Total operating expenses	71769	89972	90100
	Capital investment (purchase of equipment):			
01.01	Printing and graphics activities	46	50	30
01.02	Support services activities	315	831	30
01.03	Library services	0	12	12
01.04	Transportation computer activities..	1344	2135	2936
01.91	Total capital investment	1705	3028	3008
10.00	Total obligations	73474	93000	93108
	Financing:			
21.90	Unobligated balance, start of year	−7746	−11303	−11303
24.90	Unobligated balance available, end of year	11303	11303	11303
68.00	Budget authority (gross): Spending authority from offsetting collections (new)	77031	93000	93108
	Relation of obligations to outlays:			
71.00	Total obligations	73474	93000	93108
72.40	Obligated balance, start of year	16804	10837	10837
74.40	Obligated balance, end of year	−10837	−10837	−10837
87.00	Outlays (gross)	79441	93000	93108
	Adjustments to budget authority and outlays:			
88.00	Deductions for offsetting collections: Federal funds	−77032	−93000	−93108
89.00	Budget authority (net)	....	....	....
90.00	Outlays (net)	2409	....	....

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

WORKING CAPITAL FUND

PROGRAM AND PERFORMANCE

The Working Capital Fund finances common administrative services that are centrally performed in the interest of economy and efficiency in the Department.

Services rendered are charged at rates that return in full all operating expenses, including a normal reserve for accrued annual leave and depreciation of equipment. The fund is reimbursed by the operating administrations and offices being served.

The activities of the Working Capital Fund include:

Printing and graphics. -- Provides the necessary services needed to support the production and procurement of Department printing and graphics and serves as the production and procurement authority for the Department's graphics, materials, exhibits and photography.

Support services. -- Provides for programs such as communications, mail, building management, chauffeur, and security.

Library. -- Provides a resource for historical information and aids in the dissemination and exchange of technical and other information.

Transportation computer activities. -- Provides the necessary services needed to support information processing services which include networking, processing of data, systems management and training.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

WORKING CAPITAL FUND

OBJECT CLASSIFICATION (in thousands of dollars)

Identification Code 69-4520-0-4-407		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	Personnel compensation:			
11.1	Full-time permanent	12,122	14,166	14,500
11.3	Other than full-time permanent	628	580	539
11.5	Other personnel compensation	431	529	552
11.9	Total personnel compensation	13,181	15,275	15,591
12.1	Civilian personnel benefits	2,251	2,507	2,685
13.0	Benefits for former personnel	1,988	1,900	1,910
21.0	Travel and transportation of persons	223	426	454
22.0	Transportation of things	211	215	221
23.3	Communications, utilities, and miscellaneous charges	5,977	9,372	8,815
24.0	Printing and reproduction	2	-0-	-0-
25.0	Other services	43,123	54,269	55,575
26.0	Supplies and materials	2,143	3,419	3,454
31.0	Equipment	4,370	5,617	4,403
32.0	Land and structures	-0-	-0-	-0-
41.0	Grants, subsidies, and contributions	5	-0-	-0-
99.9	Total obligations	73,474	93,000	93,108

Personnel Summary

	FY 1992	FY 1993	FY 1994
Total compensable workyears:			
Full-time equivalent employment	343	351	340
Full-time equivalent of overtime and holiday hours	5	5	5

WORKING CAPITAL FUND
(Dollars in Thousands)

	FY 1992 Actual	FY 1993 Enacted/ Estimate	FY 1994 Estimate	Difference
Permanent Positions....	331	334	332	-2
Full-Time Equivalents..	343	351	340	-11
Ceiling.............	334	341	336	-5
Non-Ceiling.........	9	10	4	-6
Obligation Limitation..	$73,474	$93,000	$93,108	$108

DESCRIPTION OF WORKING CAPITAL FUND

The Working Capital Fund (WCF) finances common administrative services that are centrally performed in the interest of economy and efficiency in the Department of Transportation (DOT). Services rendered are charged at rates that return all operating expenses in full, including a normal reserve for accrued annual leave and depreciation of equipment. The Fund is reimbursed by the Operating Administrations (OA's) and other customers being served.

FY 1994 BUDGET REQUEST

The FY 1994 WCF request reflects an increase of $108,000 and a net decrease of 2 positions and 11 FTEs from the FY 1993 enacted level.

Mandatory increases of $3,123,000 are requested to cover pay raises, merit pay and within-grades increases, and inflation or outside vendor increases. These fixed costs must be paid, and if obligation authority is not sufficient to cover these costs, the basic level of services provided to the OA's must be reduced. Partially offsetting these increases are reductions totalling $2,304,000 for management savings and one-time costs which will not recur in FY 1994, for a total net mandatory increase of $819,000.

This budget includes total program reductions of $3,424,000, 10 positions and 19 FTEs which are partially offset by program increases of $2,713,000, 8 positions and 8 FTEs needed to fund critical enhancements to the Departmental Accounting and Financial Information System (DAFIS), to transfer operations from the Office of the Secretary (OST) reimbursable activity to the WCF where they would be more appropriately funded; and to consolidate the DOT executive motor pool from the OA's into WCF.

It should be noted that budget items formerly listed under the budget activity titled "Transportation Computer Activities" are now listed under a new title, "Information Resource Management Activities." Additionally, $11,953,000 and 12 FTEs associated with telecommunications services have been transferred from the "Support Services" budget activity and placed under this new title. This change will appropriately align ADP systems and their related support activities within the WCF, and more accurately reflect the organizational structure of OST in which ADP and telecommunications functions are assigned to the Director of the Office of Information Resource Management. This consolidation is consistent with the Paperwork Reduction Reauthorization Act of 1986, which defines Information Resource Management to include the management of both ADP and telecommunications activities.

Following is a detailed narrative describing our request by the five WCF budget activities.

WORKING CAPITAL FUND
(Dollars in Thousands)

	FY 1992 Actual		FY 1993 Enacted/ Estimate		FY 1994 Estimate		Difference	
	Oblig.	FTE	Oblig. Limit.	FTE	Oblig. Limit.	FTE	Oblig. Limit.	FTE
Printing & Graphics	$19,038	65	$19,470	65	$ 19,871	64	$ 401	-1
Support Services	23,846	130	32,793	146	19,757	129	-13,036	-17
Library	2,337	33	2,507	33	2,564	31	57	-2
Info. Res. Mgmt. Act.	23,929	27	34,457	36	47,069	48	12,612	12
Admin. Support	4,324	88	3,773	71	3,847	68	74	-3
Total	$73,474	343	$93,000	351	$93,108	340	$108	-11

PRINTING AND GRAPHICS

This budget activity provides the services required to support the production and procurement of DOT printing and graphics. In addition, this activity serves as the production and procurement authority for DOT's graphics, exhibit, and photography functions.

Changes in Resources

Total Increase in Obligation Authority: $401,000
Total Decrease in FTEs: -1

Mandatory Changes: $419,000

This includes reductions for non-recurring costs for one-time printing jobs and equipment purchases ($669,000) and management savings related to the reduced cost for contracted graphics services and printing on two sides of paper ($120,000). These are offset by increases for personnel compensation and benefits ($80,000) for annualization of FY 1993 pay raise, normal within-grade and merit pay increases, increased benefit costs, as well as a 2.7 percent price increase for travel ($1,000), a 8.9 percent increase in costs of contracted printing ($977,000) and a 2.7 percent increase for other non-personnel costs ($150,000).

Program Decreases

Printing and Graphics Program Reductions: -$18,000 and -1 FTE

A reduction of $18,000 and one FTE is proposed for this activity.

SUPPORT SERVICES

This budget activity provides the services required to support the programs of DOT such as mail, building management, chauffeur services, security and investigations.

Changes in Resources

Total Decrease in Obligation Authority: -$13,036,000
Total Decrease in FTEs: -17

Mandatory Changes: -$942,000

This includes reductions for non-recurring costs for one-time equipment purchases and contract services ($1,507,000). These are offset by increases for personnel compensation and benefits ($249,000) for annualization of FY 1993 pay raise, normal within-grade and merit pay increases, increased benefit costs, and 2.7 percent price increases for travel ($8,000) and other non-personnel costs ($308,000).

Transfers: -$11,953,000 and -12 FTEs

In addition, it is requested that $11,953,000 and 12 FTEs related to telecommunications services be transferred from Support Services to Information Resource Management Activities. This action will consolidate all information technology resources into one budget activity. The rationale for this transfer has been discussed earlier.

Program Decreases

Reassignment of Accounting Functions: -$185,000 and -5 FTEs

A decrease of $185,000 and 5 FTEs within the Office of Financial Management reflects the transfer of responsibility for Office of the Inspector General and the Research and Special Programs Administrations (RSPA) accounting support from OST to the Federal Aviation Administration.

Other Support Services Program Reductions: -$150,000 and -6 FTEs

Other reductions of $150,000 and 6 FTEs are proposed for this activity.

Program Increases

Consolidation of Executive Motor Pool: $108,000 and 3 FTEs

DOT has 21 executive use vehicles. To comply with the President's directive on reducing the number of such vehicles, the Department will create a consolidated executive motor pool in the WCF which will service executive transportation needs for each OA, except the USCG. In addition to other activities, the WCF motor pool funds seven of the Department's executive vehicles and drivers. An increase of $108,000 and three FTE's is needed to provide for a total of nine vehicles and ten drivers for the consolidated executive motor pool. This consolidation will result in annual savings of more than $250,000 in the OA's.

Transit Benefit Program: $86,000 and 3 FTEs

The budget proposes $86,000 and three FTEs to support the administrative operation of the transit benefit program. In January 1992, the Department initiated its transit benefit program for DOT employees. At that time, the administrative operations portion of the program was funded with each OA reimbursing OST for its fair share of the costs. The administrative operations of the program would be more appropriately funded under the WCF since this is a Departmentwide program. The WCF could bill each OA without the costly and time consuming effort of preparing separate reimbursable agreements required under the reimbursable authority. OA's would continue to pay directly for the actual cost of the fare benefits provided to their employees.

LIBRARY

This budget activity provides a resource for historical information and aids in the dissemination and exchange of technical and other information important to the progress of transportation.

Changes in Resources

Total Increase in Obligation Authority: $57,000
Total Decrease in FTEs: -2

Mandatory Changes: $93,000

This includes reductions for non-recurring costs for one-time contract services ($8,000) and increases for personnel compensation and benefits ($73,000) for annualization of FY 1993 pay raise, normal within-grade and merit pay increases, increased benefit costs, and 2.7 percent price increase for other non-personnel costs ($28,000).

Program Decreases

Library Program Reductions: -$36,000 and -2 FTEs

A reduction of $36,000 and two FTEs is proposed for this activity.

INFORMATION RESOURCE MANAGEMENT ACTIVITIES

This budget activity provides the necessary services needed to support information processing services which include networking, telecommunications, processing of data, maintenance, applications development, systems management, and training. It also provides the supplies, hardware, and software needed to operate the services.

Changes in Resources

Total Increase in Obligation Authority: $12,612,000 (Includes transfer of $11,953,000)
Total Increase in FTEs: 12 (Includes transfer of 12 FTEs)

Mandatory Changes: $1,045,000

This includes increases for personnel compensation and benefits ($151,000) for annualization of FY 1993 pay raise, normal within-grade and merit pay increases, increased benefit costs, as well as a 2.7 percent price increase for travel ($2,000) and a 2.7 percent increase for other non-personnel costs ($254,000). In addition, a 14.7 percent increase ($638,000) is needed for increased cost for a new telephone system service contract. The current contract's service rates are significantly below market. It is expected that the new contract will increase costs to market rates.

Transfers: $11,953,000 and 12 FTEs

An increase in this activity of $11,953,000 and 12 FTEs reflects an offsetting adjustment for the transfer of telecommunications activities from the Support Services function. The need for this action is explained under the Support Services function.

Program Decreases

Information Resource Management Program Reductions: -$2,905,000 and -2 FTEs

A reduction of $2,905,000 and two FTEs is proposed for this activity.

Program Increases

DAFIS Enhancements/Maintenance: $2,519,000 and 2 FTEs

An increase of $2,322,000 is requested to fund the continued enhancement/maintenance of DAFIS via reimbursable agreement with Mike Monroney Aeronautical Center (MMAC), the Department's design agent for DAFIS. Funding will support reimbursement for MMAC contractual services, computer services, travel, and equipment upgrades.

In FY 1994, DAFIS moves from a developmental phase to a fully operational, enhancement/maintenance phase. During DAFIS development, efforts were directed almost exclusively toward establishing a basic, standard core accounting system for departmentwide use. This was an appropriate first step in improving DOT financial management capabilities. Now it is necessary to address growing user demands and broader financial management information needs to fully meet the requirements of the CFO Act.

Throughout the enhancement/maintenance phase, DAFIS must expand to provide better tools to financial and program managers, increase productivity, and address changing user needs. In an environment of change, increased quality assurance and configuration control capabilities are critical to manage the system. Finally, as the core system design is over 10 years old, it is necessary to make enhancements to take advantage of newer automated technologies.

As other agencies that have made large investments in systems development have found, absent sufficient resources for continual system change, growth, and improvement, new systems will quickly begin to deteriorate and never achieve their full benefits. Lack of attention to enhancement/maintenance will spawn nonstandard subsidiary systems, and DOT will continue to suffer financial management weaknesses as a result. The dynamic enhancement/maintenance phase of DAFIS is within the funding levels projected by the DAFIS Cost Benefit Analysis.

In addition, two additional staff and $197,000 will be required which were previously funded under a DAFIS reimbursable agreement with RSPA for DAFIS work at the Volpe National Transportation Systems Center. As FY 1993 completes the systems development and implementation phase of the DAFIS project, these resources will be redirected to DAFIS operation and maintenance and systems enhancement activities.

ADMINISTRATIVE SUPPORT

The budget activity provides the administrative support for the WCF including personnel, accounting, and procurement support.

Changes in Resources

Total Increase in Obligation Authority: $74,000
Total Decrease in FTEs: -3

Mandatory Changes: $204,000

This includes increases for personnel compensation and benefits ($170,000) for annualization of FY 1993 pay raise, normal within-grade and merit pay increases, and 2.7 percent price increases for travel ($4,000) and other non-personnel costs ($30,000).

Program Decreases

Management Improvements: -$112,000 and -2 FTEs

A decrease of $112,000 and 2 FTEs reflects anticipated savings from instituting management efficiencies within the Office of Financial Management.

Other Administrative Support Program Reductions: -$18,000 and -1 FTE

A reduction of $18,000 and one FTE is proposed for this activity.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

MINORITY BUSINESS RESOURCE CENTER PROGRAM ACCOUNT

For the cost of direct loans $300,000 as authorized by 49 U.S.C. 332: *Provided further*, That these funds are available to subsidize gross obligations for the principal amount of direct loans not to exceed $7,500,000. In addition, for administrative expenses to carry out the direct and guaranteed loan programs, $400,000. *(Department of Transportation and Related Agencies Appropriations Act, 1993.)*

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

MINORITY BUSINESS RESOURCE CENTER
PROGRAM ACCOUNT

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69-0155-0-1-407		1992 actual	1993 est.	1994 est.
	Program by activities:			
00.03	Direct loan subsidy	....	300	300
00.09	Administrative expenses	....	400	400
10.00	Total obligations	....	700	700
	Financing:			
40.00	Budget authority (appropriation)	....	700	700
71.00	Total obligations	....	700	700
90.00	Outlays	....	700	700

Loan levels (in thousands of dollars)

Identification code 69-0155-0-1-407		1992 actual	1993 est.	1994 est.
	Direct loan levels suppportable by subsidy budget authority:			
1150	Direct loan levels	....	7500	7500
1159	Total direct loan levels		7500	7500
	Direct loan subsidy (in percent):			
1329	Weighted average subsidy rate		4.00	4.00
	Direct loan subsidy:			
1339	Total subsidy budget authority		300	300
	Direct loan subsidy outlays:			
1349	Total subsidy outlays		300	300
	Major subsidy assumptions:			
1350	Default rate		10.00	10.00
1360	Interest rate		3.88	4.88

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE SECRETARY

MINORITY BUSINESS RESOURCE CENTER PROGRAM ACCOUNT

PROGRAM AND PERFORMANCE

Office of Small and Disadvantaged Business Utilization (OSDBU)/Minority Business Resource Center (MBRC). - The OSDBU/MBRC provides assistance in obtaining short-term working capital and bonding for disadvantaged, minority, and women-owned businesses (DBE/MBE/WBEs). In fiscal year 1994, the short-term loan program will focus on the lending of working capital to DBE/MBE/WBEs for transportation-related projects in order to strengthen their competitive and productive capabilities.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

MINORITY BUSINESS RESOURCE CENTER PROGRAM ACCOUNT

OBJECT CLASSIFICATION (in thousands of dollars)

Identification Code 69-0155-0-1-407		FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
25.2	Other Services..	-0-	400	400
41.0	Grants, subsidies, and contributions.........	-0-	300	300
99.9	Total obligations......................................	-0-	700	700

MBRC LOAN PROGRAM

OFFICE OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION
MINORITY BUSINESS RESOURCE CENTER
($ in thousands)

	FY 1992 1/	FY 1993 Estimate	FY 1994 Estimate	Differenc
Minority Business Resource Center		$ 700	$ 700	$ ----
Loan Program		$ 7,500	$ 7,500	---

1/ The MBRC loan program was funded under Salaries and Expenses Appropriations in prior years.

The Office of Small and Disadvantaged Business Utilization (OSDBU), Minority Business Resource Center (MBRC) designs and conducts a coordinated program of activities directed at stimulating, promoting and actively assisting minority business enterprises and small and disadvantaged business participation in Departmental procurement and Federal financial assistance activities.

The OSDBU Short Term Lending Program (STLP) enables minority, women-owned and disadvantaged business enterprises (DBEs) to obtain critically needed short term working capital at prime interest rates for transportation-related projects. The basic eligibility requirements for applicants are: (1) the applicant must hold a current, valid certification as a DBE from an agency applying DOT certification requirements and, (2) the firm must possess a transportation-related contract which supports the application. The STLP is administered by OSDBU's MBRC in conjunction with a minority bank.

In completing the STLP loan applications, applicants should be prepared to provide the following minimum information: (1) three years of financial and income tax statements, (2) contract and corporate information, (3) cash flow analysis for the period of the loan, (4) education, technical and business background of the company and employees and, (5) bank references.

RESOURCES

The MBRC Loan Program remains at the same level as funded in FY 1993 ($700,000 which includes $300,000 to cover loan losses, and $400,000 for direct administrative cost). Under the Credit Reform Act, this level of financing will support a $7.5M loan program.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

MINORITY BUSINESS RESOURCE CENTER DIRECT LOAN FINANCING ACCOUNT

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69-4186-0-3-407		1992 actual	1993 est.	1994 est.
	Program by activities:			
00.01	Direct loans	....	7500	7500
00.02	Interest on Treasury borrowing	....	241	514
10.00	Total obligations		7741	8014
	Financing:			
39.00	Financing authority (gross)	....	7741	8014
	Financing authority:			
67.15	Authority to borrow (indefinite)	....	7741	7714
68.00	Spending authority from offsetting collections	....	300	300
	Relation of obligations to outlays:			
71.00	Total obligations	....	7741	8014
87.00	Financing disbursements (gross)	0	7741	8014
	Adjustments to financing authority and outlays:			
88.00	Deductions for offsetting collections: Federal funds	....	−300	−300
89.00	Financing authority (net)	.....	7441	7714
90.00	Financing disbursements (net)	.....	7441	7714

STATUS OF DIRECT LOANS (in thousands of dollars)

Identification code 69-4186-0-3-407		1992 actual	1993 est.	1994 est.
	Portions with respect to appropriations act limitation on obligations:			
1111	Limitation on direct loans	....	....	....
1131	Direct loan obligations exempt from limitation	....	7500	7500
1150	Total direct loan obligations	....	7500	7500
	Cumulative balance of direct loans outstanding:			
1210	Outstanding, start of year	....	....	....
1231	Disbursements: Direct loan disbursements	....	7500	7500
1290	Outstanding, end of year	....	7500	7500

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code 69-4186-0-3-407		1992 actual	1993 est.	1994 est.
33.0	Investments and loans	....	7500	7500
43.0	Interest and dividends	....	241	514
99.9	Total obligations	....	7741	8014

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

MINORITY BUSINESS RESOURCE CENTER DIRECT LOAN LIQUIDATING ACCOUNT PROGRAM AND FINANCING ACCOUNT

STATUS OF DIRECT LOANS (in thousands of dollars)

Identification code 69-4187-0-3-407		1992 actual	1993 est.	1994 est.
	Cumulative balance of direct loans outstanding:			
1210	Outstanding, start of year	1292	1292	1292
1290	Outstanding, end of year	1292	1292	1292

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRUST FUND SHARE OF RENTAL PAYMENTS

PROGRAM AND FINANCING (In thousands of dollars)

Identification code 69-8066-0-7-407	1992 actual	1993 est.	1994 est.
Program by activities:			
10.00 Total obligations (object class 25.0)	46128	49047	40551
Financing:			
40.00 Budget authority (appropriation)	46128	49047	40551
Relation of obligations to outlays:			
71.00 Total obligations	46128	49047	40551
90.00 Outlays	46128	49047	40551

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRUST FUND SHARE OF RENTAL PAYMENTS

PROGRAM AND PERFORMANCE

Beginning in 1991, trust fund payments to GSA for headquarters and field space rental and related services were consolidated into this account.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRUST FUNDS

PAYMENTS TO AIR CARRIERS

(LIQUIDATION OF CONTRACT AUTHORIZATION)

(AIRPORT AND AIRWAY TRUST FUND)

For liquidation of obligations incurred for payments to air carriers of so much of the compensation fixed and determined under section 419 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1389), as is payable by the Department of Transportation, $38,600,000, to remain available until expended and to be derived from the Airport and Airway Trust Fund: *Provided*, That none of the funds in this Act shall be available for the implementation or execution of programs in excess of $38,600,000 for the Payments to Air Carriers program in fiscal year [1993] *1994*: *Provided further*, That none of the funds in this Act shall be available for service to communities not receiving such service during fiscal year 1991, unless such communities are otherwise eligible for new service, provide the required local match and are no more than 200 miles from a large hub airport: *Provided further*, That none of the funds in this Act shall be available to increase the service levels to communities receiving service unless the Secretary of Transportation certifies in writing that such increased service levels are estimated to result in self-sufficiency within three years of initiation of the increased level of service. *(Department of Transportation and Related Agencies Appropriation Act, 1993)*.

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRUST FUND

PAYMENTS TO AIR CARRIERS

PROGRAM AND FINANCING (in thousands of dollars)

Identification code 69–8304–0–7–407	1992 actual	1993 est.	1994 est.
Program by activities:			
10.00 Total obligations (object class 41.0)	35227	38600	38600
Financing:			
21.49 Unobligated balance available, start of year	......	–3373	–3373
24.49 Unobligated balance available, end of year	3373	3373	3373
39.00 Budget authority	38600	38600	38600
Budget authority:			
Current:			
40.00 Appropriation	38600	38600	38600
40.49 Portion applied to liquidate contract authority	–38600	–38600	–38600
43.00 Appropriation (total)	....	....	....
Permanent:			
69.10 Contract authority (96 Stat. 1740)	38600	38600	38600
Relation of obligations to outlays:			
71.00 Total obligations	35227	38600	38600
72.40 Obligated balance, start of year	....	4368	12067
74.40 Obligated balance, end of year	–4368	–12067	–12067
90.00 Outlays	30859	30901	38600

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

PAYMENTS TO AIR CARRIERS

PROGRAM AND PERFORMANCE

The Secretary of Transportation, through powers of delegation and review, administers the section 419 subsidy program, which was added as part of the Airline Deregulation Act of 1978. Subsidies under this program are paid to airlines--primarily commuter carriers for specified service to designated communities. Beginning in 1992, this program is funded out of the Airport and Airway Trust Fund.

PAYMENTS TO AIR CARRIERS

SUMMARY STATEMENT
($000)

	FY 1992 Actual	FY 1993 Enacted	FY 1994 Estimate	Difference
Budget Authority	$35,227	$38,600	$38,600	0
Obligation Limit.	35,227	38,600	38,600	0
Liquidation of Contract Authority	35,227	38,600	38,600	0

Essential Air Service (EAS)

This appropriation provides funds to subsidize air service to small communities by payment to air carriers under Section 419 of the Federal Aviation Act of 1958, as amended by the Airline Deregulation Act of 1978, by the Airport and Airway Safety and Capacity Expansion Act of 1987 and by the Omnibus Budget Reconciliation Act of 1990.

EAS was established as a transition program following airline deregulation. Authorization for the program was extended through September 30, 1998, by the Airport and Airway Safety and Capacity Expansion Act of 1987, P.L. 100-223. The Omnibus Budget Reconciliation Act of 1990 authorized $38.6 million in contract authority for the program for each year FY 1992-1998. The annual amounts remain available until expended.

Eligible communities under the EAS program (about 700) include, generally, communities that were listed on air carrier certificates at the time of passage of the Airline Deregulation Act in October 1978. As amended by the Budget Reconciliation Act of 1990, eligible points are defined specifically as points that were eligible under section 419(a) of the Federal Aviation Act before October 1, 1988, that received scheduled air transportation at any time after January 1, 1990, and that did not have their eligibility withdrawn by DOT Orders 89-9-37 or 89-12-52 (26 communities were made ineligible by these two orders). Eligible points include those that receive subsidized service as well as those receiving non-subsidized service.

There are two distinct types of section 419 compensation. The first (referred to as "hold-in") occurs when an incumbent carrier has filed a notice of intent to terminate service or reduce it below the level that is required as essential service. In that event, the Department is required to prohibit the incumbent carrier from suspending service at the community until a replacement is obtained. Compensation is provided to the "held-in" carrier in the interim.

The second basic type of section 419 rate is longer-term compensation. Rates of compensation are agreed to with air carriers for future periods subject to availability of funds, normally two years in duration, at EAS points where these carriers have proposed service, but cannot do so without compensation. This kind of section 419 compensation is paid as reimbursement to carriers monthly after the Department has solicited proposals to serve a point, has chosen a carrier, and the carrier has provided service.

The $38.6 million obligation limitation requested for compensation to small communities in FY 1994 is premised upon maintaining the quality of air service required by P.L. 100-223, section 419.

The budget estimate for FY 1994 assumes that approximately 130 communities in the 50 states, Puerto Rico and the Pacific trust territories would receive subsidized service. This number is comparable to the number of communities that received subsidized service in FY 1992. This reflects the anticipation that scheduled air transportation at some non-subsidized EAS communities will drop below the break-even level and require compensation while some currently subsidized communities may be approaching profitability and will no longer require financial support. (For example, in FY 1992 four points came off subsidy and eleven were added.)

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

TRUST FUND

GIFTS AND BEQUESTS

PROGRAM AND FINANCING (in thousands of dollars)

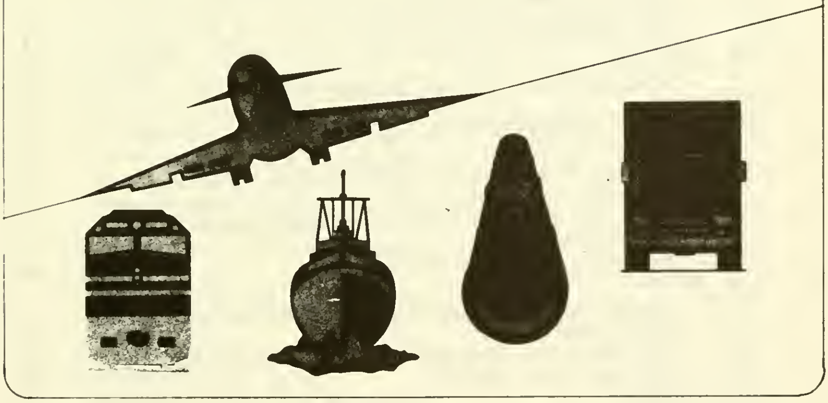
Identification code 69–8548–0–7–407	1992 actual	1993 est.	1994 est.
Program by activities:			
10.00 Total obligations (object class 25.2)	–26	.....	.....
Financing:			
Unobligated balance, start of year:			
21.40 Treasury balance	–54	–29	–29
21.41 U.S. securities: Par value	–1	–1	–1
Unobligated balance, end of year:			
24.40 Treasury balance	29	29	29
24.41 U.S. securities: Par value	1	1	1
39.00 Budget authority	.....	.....	.....
Relation of obligations to outlays:			
71.00 Total obligations	26	.....	.....
78.00 Adjustments in unexpired accounts	.....	.....	.....
90.00 Outlays	25	.....	.....

Donations received are available for transportation activities.

NEW ODD PAGE

NATIONAL TRANSPORTATION SAFETY BOARD

FISCAL YEAR 1994 BUDGET



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MISSION AND AUTHORITY

The National Transportation Safety Board is an independent agency charged with determining the probable cause(s) of transportation accidents and promoting transportation safety. The Board investigates accidents, conducts safety studies, evaluates the effectiveness of other government agencies' programs for preventing transportation accidents, and reviews appeals of adverse actions by the Administrators of agencies of the Department of Transportation involving airman and seaman certificates and licenses.

Most importantly, the Board makes safety recommendations, based on its investigations and studies, to Federal, State and local government agencies and to the transportation industry regarding actions that should be taken to prevent accidents. Safety recommendations are the focal point of the Board's efforts to improve safety in the transportation system.

Although the Board's charter is the Independent Safety Board Act of 1974, its origins can be found in the Air Commerce Act of 1926, in which Congress charged the Commerce Department with investigating the causes of aircraft accidents. Since 1967 the Board has investigated accidents in all modes of transportation including aviation, highway, marine, rail, and pipeline. The Safety Board also investigates accidents involving the transportation of hazardous materials.

The Board has no authority to regulate the transportation industry. Therefore, its effectiveness depends on its reputation for timely and accurate determination of accident causation and for issuing realistic and feasible safety recommendations to satisfy the need for prompt implementation of safety improvements.

Although the missions and authorities of other Federal agencies include fostering and ensuring the safety of the U.S. transportation system, the independent oversight role of the Safety Board is essential in prompting compliance with those agencies' roles both by its thorough and timely investigations and by its recommendations to prevent future accidents. Additional information regarding the Safety Board's mission and authority as compared to other organizations can be found in "The Role of the Safety Board and Other Organizations in Transportation Safety" in the Additional Data Section of this document.

APPROPRIATION LANGUAGE

Salaries and Expenses

For necessary expenses of the National Transportation Safety Board, including hire of passenger motor vehicles and aircraft; services as authorized by 5 U.S.C. 3109, but at rates for individuals not to exceed the per diem rate equivalent to the rate for a GS-18; uniforms or allowances therefore, as authorized by law (5 U.S.C. 5901-5902), [$36,000,000] $37,125,000 of which not to exceed $1,000 may be used for official reception and representation expenses. (Department of Transportation and Related Agencies Appropriation Act, 1994.)

SALARIES AND EXPENSES
Program and Financing (in thousands of dollars)

Identification Code: 95-0310-0-1-407	1992 Actual	1993 Estimate	1994 Estimate
Program by activities:			
00.01 Policy and Direction	4,815	5,043	5,189
00.02 Aviation Safety	12,403	12,892	13,333
00.03 Surface Transportation Safety	8,831	9,236	9,467
00.04 Research and Engineering	4,562	4,669	4,832
00.05 Administration	2,480	2,538	2,590
00.06 Administrative Law Judges	1,585	1,622	1,714
10.00 Total Obligations	34,676	36,000	37,125
Financing:			
39.00 Budget Authority (Appropriation)	34,676	36,000	37,125
Budget Authority:			
40.00 Appropriation	34,676	36,000	37,125
Relation of Obligations to Outlays:			
71.00 Obligations incurred, net	34,676	36,000	37,125
72.40 Obligated Balance, Start of Year	5,291	4,427	3,600
74.40 Obligated Balance, End of Year	-4,427	-3,600	-3,713
77.00 Adjustments in Expired Accounts	89	--	--
90.00 Outlays	35,629	36,827	37,012

SALARIES AND EXPENSES
Object Classification (in thousands of dollars)

Identification Code: 95-0310-0-1-407	1992 Actual	1993 Estimate	1994 Estimate
Personnel Compensation and Benefits:			
11.1 Permanent positions	18,426	19,805	20,514
11.3 Positions other than permanent	554	587	251
11.5 Other personnel compensation	626	666	676
11.8 Special personal services payments	8	8	8
Total personnel compensation	19,614	21,066	21,449
12.1 Personnel benefits: Civilian	3,703	4,184	4,610
Total personnel compensation and benefits	23,317	25,250	26,059
Other than personnel compensation and benefits:			
21.0 Travel and transportation of persons	1,438	1,512	1,562
22.0 Transportation of things	86	90	93
23.1 Standard level user charges	4,683	4,852	4,983
23.2 Rental payments to others	167	173	178
23.3 Communications, utilities, and miscellaneous charges	751	769	778
24.0 Printing and reproduction	316	332	343
25.0 Other services	1,932	2,042	2,117
26.0 Supplies and materials	315	331	342
31.0 Equipment	1,669	590	609
42.0 Insurance claims and indemnities	2	59	61
99.9 Total obligations	34,676	36,000	37,125

Personnel Summary:

	1992 Actual	1993 Estimate	1994 Estimate
Full-time equivalent employment (FTE)	352	357	348
FTE of overtime and holiday hours	5	5	5

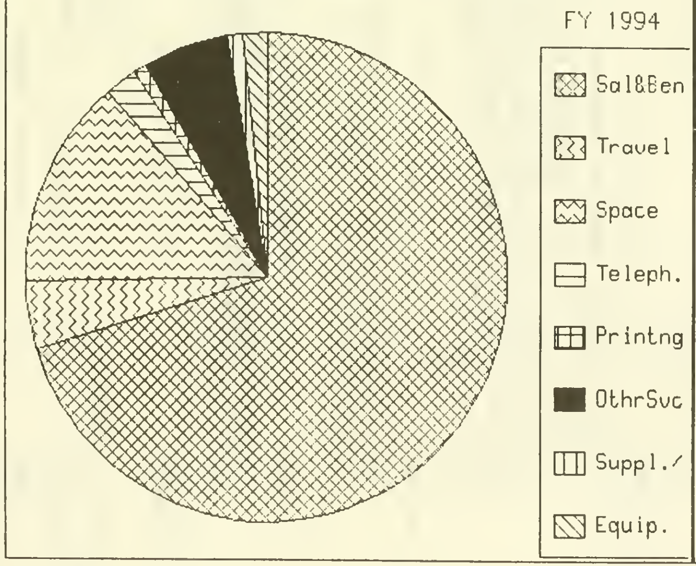
EMERGENCY FUND
Program and Financing (in thousands of dollars)

Identification Code: 95-0311-0-1-407	1992 Actual	1993 Estimate	1994 Estimate
Program by Activities:			
00.02 Accident Investigation	--	--	--
10.00 Total Obligations	--	--	--
Financing:			
21.40 Unobligated balance available, start of year	-639	-639	-639
24.40 Unobligated balance available, end of year	639	639	639
39.00 Budget authority	--	--	--
Relation of Obligations to Outlays:			
71.00 Obligations Incurred, Net	--	--	--
90.00 Outlays	--	--	--

WHAT MAKES UP THE SAFETY BOARD'S BUDGET?

FY 94 Congressional Budget

Summary by Type of Expense



	FY 94 Dollars	Pct.
Sal&Ben	26,059	70%
Travel	1,655	4%
Space	5,161	14%
Teleph.	778	2%
Printng	343	1%
OthrSvc	2,117	6%
Suppl./	403	1%
Equip.	609	2%
TOTAL	37,125	100%

Other Stats:

FY93 Pay Raise	3.7%
FY94 Pay Raise	0.0%
Inflation	2.7%
FTE	348

ANALYSIS OF CHANGES

FY 1993 to 1994

$ -158,000 ....9 FTE Position Decrease (357-348)

This reduction reflects the Safety Board's share of the four percent across-the-board reduction of full-time-equivalent (FTE) positions proposed by the President.

$ 281,000 ....Inflation

Based on OMB's latest economic assumptions, an inflation rate of 2.7 percent is anticipated for FY 1994. This factor is applied to all non-personnel costs.

$ 279,000 ....Civilian Benefits

Civilian benefits costs are expected to exceed the projected increase related to the pay raise. Higher health benefit premiums, the increase in the number of employees covered by the more expensive Federal Employees Retirement System, and the continued increase in employee participation in the Thrift Savings Plan have been the primary reasons for similar civilian benefit increases experienced during the past few years.

$ 232,000 ....Pay Raises

The requested funds will cover the FY 1994 annualization of the January 1993 (3.7 percent) general pay raise.

$ 491,000 ....Promotions/Within-Grade Increases

Expenses related to career promotions and within-grade increases will cost approximately 2 percent of salaries in FY 1994.

$ 1,125,000 ....Total Amount of Changes

Summary of Changes:

$36,000,000 ....FY 1993 Appropriation (357 FTE)

$ 1,125,000 ....Total Amount of Changes

$37,125,000 ....FY 1994 Request (348 FTE)

SUMMARY OF
RESOURCE REQUIREMENTS AND
WORKLOAD MEASURES
FY 1992-1994

	FY 1992	FY 1993	FY 1994
Resource Requirements			
Budget Authority ($000)			
Policy and Direction	4,815	5,043	5,189
Aviation Safety	12,403	12,892	13,333
Surface Transportation Safety	8,831	9,236	9,467
Research & Engineering	4,562	4,669	4,832
Administration	2,480	2,538	2,590
Administrative Law Judges	1,585	1,622	1,714
Total Budget Authority	34,676	36,000	37,125
Outlays ($000)	35,629	36,827	37,012
Full-time Equivalent (FTE) Employment (workyears)			
Policy and Direction	43	44	43
Aviation Safety	128	130	127
Surface Transportation Safety	91	93	90
Research & Engineering	48	48	47
Administration	29	29	28
Administrative Law Judges	13	13	13
Total Funded FTE Employment	352	357	348
OMB Ceiling	357	357	348
Workload Measures:			
Safety Recommendations Issued	385	385	345
Major Accident Investigation Reports	18	18	16
Aviation (Domestic)	7	7	6
Railroad	2	2	2
Highway	2	2	2
Marine	6	6	5
Hazardous Materials/Pipeline	1	1	1
Field and Other Accident Investigation Reports	1,390	4,214	2,703
Aviation (Domestic)	1,176	4,000	2,500
Railroad	98	98	93
Highway	51	51	48
Marine	58	58	55
Hazardous Materials/Pipeline	7	7	7
Foreign Investigations (Aviation)	60	60	57
Public Hearings	4	4	4
Safety Studies and Special Investigations	10	10	9
Certificate and License Appeals (Closed)	950	950	925
Civil Penalty Appeals (Closed)	0	50	50
Opinions and Orders (Closed)	269	269	225

ALLOCATION OF RESOURCES BY PROGRAM, MODE, FUNCTION, AND LOCATION FY 1994

Distribution by Program	Staff (FTE)	Cost ($000)
Policy and Direction	43	5,189
Aviation Safety	127	13,333
Surface Transportation Safety	90	9,467
Research & Engineering	47	4,832
Administration	28	2,590
Administrative Law Judges	13	1,714
TOTAL	348	37,125

Distribution by Transportation Mode		
Aviation	228	24,323
Railroad	40	4,267
Highway	48	5,121
Marine	23	2,454
Pipeline	6	640
Hazardous Materials	3	320
TOTAL	348	37,125

Distribution by Function		
Major Accident Investigations	173	18,464
Field Accident Investigations	111	11,846
Safety Reviews and Studies	19	2,028
Appeals	17	2,197
Administrative Support	28	2,590
TOTAL	348	37,125

Distribution by Location		
Headquarters	240	25,603
Field	108	11,522
TOTAL	348	37,125

FUTURE PLANS

The Safety Board's current and long-term priorities are reflected in its "Most Wanted" Safety Recommendation Program, Other Significant Safety Issues, and Safety Studies Sections. Within funding and personnel limitations, the Board proposes to focus its efforts on the following areas to assure the public's confidence in the safety of the Nation's transportation system and to provide the highest potential safety payoff.

MOST WANTED SAFETY RECOMMENDATION PROGRAM

Since the Safety Board began investigating accidents, it has issued more than 9,000 safety recommendations to prevent accidents, save lives, and reduce injuries. While all the recommendations made by the Safety Board will, if implemented, improve safety and help prevent accidents, some of these recommendations have a greater potential to save lives. In order to identify those recommendations with the greatest impact on transportation safety, the Safety Board adopted the "Most Wanted" Safety Recommendation Program. Recommendations selected as part of the program will receive more intensive follow-up activity in order to persuade government agencies and industry to act on them as quickly as possible.

In order to be considered for the "Most Wanted" list, a recommendation must have a national impact on transportation safety, concern a safety issue of high visibility, or be of great interest to the public. Also considered are: previous loss of life and property and the potential for future losses; the extent to which the safety problem the recommendation is aimed at solving exposes the public to risk; and previous action taken by the recipient. Strong regard is given to recommendations that have not been acted upon for an inordinately long period of time.

The safety issues highlighted on the Board's "Most Wanted" list are identified below and are described in more detail later in this section.

- Airport Runway Incursions (pg. 12)
- Requirements for Mode C Intruder Conflict Alerts in FAA Aviation Terminal Radar Control Areas (Requirements for Mode C Intruder Conflict Alerts in Terminal Areas, pg. 12)
- Maximum Brake Wear Limits and Performance in Transport Category Aircraft (Aircraft Brake Certification, pg. 12)
- Aircraft Structural Fatigue Testing to Two Lifetimes (Aging Aircraft, pg. 14)
- Positive Train Separation (Advanced Train Control Systems, pg. 14)
- Heavy Commercial Truck Safety (pg. 15)

- School Bus Safety (pg. 16)
- Administrative Revocation of Driver's Licenses (Passage of Administrative Revocation of Driver's License Laws in all States, pg. 17)
- Installation of Adjustable Upper-Anchorage Points for Automobile Seatbelt Shoulder Harnesses (Provision for Adjustable Upper Anchorage Points for Seatbelts, pg. 17)
- State Mandatory Use of Seatbelts (Mandatory Use of Seatbelts, pg. 18)
- Boating While Intoxicated (Passage of State Laws to Combat Boating While Intoxicated, pg. 19)
- Passenger Vessel Safety (Foreign Cruise Ship Operation Out of U.S. Ports, pg. 19)
- Fishing Vessel Safety (pg. 20)
- Installation of Pipeline Excess Flow Valves (Excess Flow Valves, pg. 21)
- Evaluation of Safety Standards for Railroad Tank Cars that Transport Hazardous Materials (Transportation of Hazardous Materials by Rail, pg. 22)
- Improved Fatigue and Hours-of-Work Research, Education, and Regulations for all Transportation Modes (Hours-of-Work/Human Fatigue, pg. 23)
- Uniform Industry-Wide Policy on Collection, Processing and Testing for the Detection of Toxicological Specimens of Alcohol and Drugs (Uniform Industry-Wide Policy on Collection, Processing and Testing for the Detection of Alcohol and Drugs, pg. 24)

On July 9, 1991, the Safety Board voted to remove from the original list the issue of identification of aviation pilots with substance abuse problems. This action was taken as a result of the many varied efforts by the FAA to bring about the early and efficient identification of pilots who may have a substance abuse problem.

On September 17, 1991, the Safety Board voted to add the issue of state mandatory seatbelt use laws to the "Most Wanted" list.

On May 27, 1992, the Safety Board voted to remove the Ground Proximity Warning System issue from the original list because the FAA issued a final rule on the subject in March 1992.

Airport Runway Incursions

One year ago, the Board's "Most Wanted" list contained 15 safety recommendations addressing the runway incursion problem. These safety recommendations came from a 1986 safety study on this issue, and three major runway incursion accidents occurring at Atlanta's Hartsfield International Airport on January 18, 1990, at the Detroit Metropolitan Airport on December 3, 1990, and at the Los Angeles International Airport on February 1, 1991. On September 22, 1992, the Board classified Safety Recommendation A-86-40 as "Closed--Acceptable Action" based on the FAA's integration of information on surface operational errors, surface pilot deviation, and vehicle/pedestrian deviations into an automated runway incursion information system.

Of the remaining 14 safety recommendations on the "Most Wanted" list in this issue area, 8 are awaiting further action by the FAA; and 6 are pending the Board's evaluation of the FAA response.

In 1991, the FAA established a number of Runway Incursion Action Teams that were to inspect airports for compliance with ground control standards. These teams inspected 18 airports in 1991 and 20 in 1992. Additional inspections will be conducted during 1993.

Requirement for Mode C Intruder Conflict Alert in Terminal Areas

Following the midair collision between an Aeronaves de Mexico, DC-9 and a Piper PA-28 above Cerritos, California, on August 31, 1986, the Safety Board recommended that the FAA take expedited action to add visual flight rules (VFR) conflict alert (Mode C Intruder) logic to automated radar terminal systems (ARTS) computers as an interim measure to the ultimate implementation of the advance automation system (AAS).

The FAA completed its study of the technical and operational factors involved in adding VFR conflict alert logic software to the ARTS IIIA computers in 1988. Based on the results of that study, the FAA entered negotiations for a contract to perform the needed modifications to all ARTS IIIA sites. In a January 6, 1992, letter to the Board, the FAA Administrator informed the Board that the New York TRACON facility had an operational Mode C system as of July 3, 1991. The FAA continues to hold to a projected schedule that will complete all sites by the end of fiscal year 1995. The Safety Board will continue to monitor the FAA's progress.

Aircraft Brake Certification

The Safety Board completed a lengthy and complicated investigation of the McDonnell-Douglas DC-10-30/40 brake systems and related accelerate-stop performance requirements in 1990. A special investigation report was issued which contained 12 safety recommendations addressing inadequacies in transport airplane brake certification requirements, rejected takeoff (RTO) safety margin requirements, and DC-10-30/40 brakes.

The investigation resulted from a McDonnell Douglas DC-10-30/40 overrun on May 21, 1988, at Dallas-Fort Worth International Airport. The airplane was damaged beyond economical repair during the attempted RTO. In response to RTO procedures, the airplane decelerated normally for five to six seconds, slowing from 178 knots, the maximum ground speed, to about 130 knots. At that point, the deceleration decayed rapidly resulting in the airplane departing the end of the runway at a ground speed of about 97 knots. Of the 255 occupants, only two members of the flightcrew were seriously injured.

The longitudinal acceleration data recorded on the airplane's digital flight data recorder (DFDR) showed that the airplane's brakes failed during the RTO. If the brakes had not failed, the airplane could have stopped on the runway. Examination of the airplane's wheel brake system revealed that eight of the 10 brakes failed totally when the brake friction material was depleted. The depletion of the friction material allowed the brake pistons to over-extend, unporting the hydraulic system.

Prior to the RTO, the eight brakes were acceptable for flight, but were near the established replacement limits. The replacement limits were established to assure that the brakes were not damaged during normal friction material wear. A new brake has about 2.7 inches of material available, while 0.7 inches is the minimum allowable. However, certification flight test data showed that new brakes wear, on average, about 1.5 inches during an RTO compared with the 0.7 inches available on brakes at normal replacement limits. Clearly, the replacement limits were unacceptable.

Further testing has shown that airplanes equipped with worn brakes will require extra stopping distance. This is not reflected in the airplane performance manuals. Failure to account for the additional stopping distance reduces the expected safety margin during an RTO.

In addition, the FAA-approved brake wear limits are based on normal operational requirements, not on the more demanding RTO requirements. This deficiency may exist in many categories of airplanes, resulting in the FAA being unable to guarantee acceptable worn brake performance during an RTO. As a result of Safety Board recommendations, the aviation industry has targeted many transport category brake designs for reductions in the amount of wear permitted before brake material replacement. In addition, the FAA has issued airworthiness directives, establishing appropriate wear limits for DC-9, DC-10, B-727, B-737, B-747, B-757, B-767, and L-1011 airplanes. Currently, procedures for determining the runway length requirement for a high energy RTO with required safety margin are inadequate. However, the FAA has dropped plans to pursue further rulemaking action on aircraft performance related to RTOs and related safety margins. The Safety Board will continue to address the certification and operational aspects of takeoff performance and safety as these issues relate to runway overrun accidents or incidents.

Aging Aircraft

The airworthiness of the aging U.S. aircraft fleet is an issue that requires constant attention by operators, airframe and engine manufacturers, and the FAA. Despite the delivery of new airplanes, the average age of the airplanes in use in the United States continues to increase, and more planes than ever have exceeded their economic design life limit.

The aging aircraft issue was brought to the public's attention by an Aloha Airlines accident in April 1988. In this accident, about 18 feet of the upper fuselage of a Boeing 737 ripped open during flight, killing one crew member. The Safety Board found that the accident was precipitated by fatigue cracking along a lap joint rivet row. In order to reduce the probability that structural fatigue cracking could contribute to additional accidents, the Safety Board recommended that the FAA require that all turbojet transport category airplanes certificated in the future receive full scale structural fatigue testing to a minimum of two times the projected economic service life. The Board also urged the FAA to require that all currently certificated turbojet transport category airplanes be subjected to such testing. The FAA has expressed general agreement with this recommendation, but has taken no regulatory action in this area.

In order to eliminate the human factors problems associated with repeated inspections and to ensure that airplanes received adequate permanent repairs of known cracking problems, the FAA and industry formed groups to study the service bulletins of all airplane models. The group recommended, and the FAA responded with proposed regulatory action, that operators be required to perform the terminating action portion of those service bulletins involving structural integrity.

Structural integrity rules for new aircraft are being reviewed by the Office of Management and Budget. The Aviation Regulatory Action Committee is in the process of drafting a suggested special regulation to cover existing aircraft structural testing. The committee's report is expected to be issued during the summer of 1993.

RAILROAD

Advanced Train Control Systems (ATCS)

The Safety Board is a strong advocate of systems which provide backup control when an engineer fails to properly control a train. The Board has made several safety recommendations to the Federal Railroad Administration (FRA) that it require systems to ensure that trains are equipped with alerting devices.

The ATCS is being developed and tested for advanced train control, and it is important for the FRA to take a proactive position in conjunction with the Association of American Railroads (AAR) and the Railway Progress Institute (RPI) to expand the effort now being made to develop and install ATCS for the purpose of positive train separation.

The urgency of this issue has been highlighted in the Board's investigations of the August 8, 1990, Sugar Valley, Georgia accident, the November 7, 1990, Corona, California accident and the September 17, 1991, Knox, Indiana accident. Positive train separation also may be an issue in the accident investigation currently in progress in Ledger, Montana that involved a head-on collision of two freight trains.

The Safety Board has consistently maintained that the FRA should become actively involved in the development of any positive train control system. It has been the Board's position that the FRA should provide funding incentives and program direction to assure a uniform implementation of the positive train separation features in any train control system and that the use of a single system, or at least compatible systems, should be mandatory throughout the country's rail system.

The Board is monitoring the ongoing efforts between the AAR, the FRA, and industry to arrive at a satisfactory solution.

HIGHWAY

Heavy Commercial Truck Safety

For a one year period, the Safety Board investigated every accident in eight states in which the driver of a heavy truck was fatally injured. The Board investigated 182 such accidents representing nearly 25 percent of these accidents nationwide. The Board obtained specimens and conducted toxicological tests for the presence of 44 different drugs and drug classes. The Safety Board found that 33 percent of the fatally injured truck drivers tested positive for alcohol or other drugs of abuse. Marijuana and alcohol were the most prevalent drugs (13 percent each) followed by cocaine (9 percent), amphetamines (7 percent), other stimulants (8 percent), and codeine and PCP (less than 1 percent each). Stimulants were the most frequently identified drug class. The most frequently cited probable causes were fatigue (31 percent) and alcohol and other drug impairment (29 percent).

The Board noted that fatigue and fatigue-drug interactions were involved in more fatalities than alcohol and other drugs of abuse alone. The Safety Board also identified a strong correlation between Federal hours of service regulation violations and drug use.

As a result of these investigations, the Safety Board made 46 recommendations to Federal, state, and private organizations calling for improvements in national databases on commercial truck accidents; improved and standardized post-accident toxicological specimen collection, testing, and reporting; improvements in truck driver alcohol and other drug screening and medical testing procedures; automated devices to document hours of service violations; toxicological testing of all drivers in fatal truck accidents; and a variety of state laws including a functional zero blood alcohol content for commercial drivers.

The Department of Health and Human Services (DHHS) _Mandatory Guidelines for Federal Workplace Drug Testing Programs_ for standardized drug testing methodology and procedures is under review as a result of recommendations to DHHS and the Department of Transportation (DOT). The National Highway Traffic Safety Administration (NHTSA) is revising its Fatal Accident Reporting System (FARS) data fields to report drug testing data and will make further revisions in 1993 as a result of the Board's recommendations. The Professional Truck Driver Institute of America (PTDIA) has acted upon the Board's recommendation to disseminate information from the Safety Board study to its members. Other recommendations are being reviewed by the recipients, but are receiving a lower priority. The Federal Highway Administration has taken positive action on driver medical qualification recommendations. Also as a result of this study, the State of Illinois established a Safe Trucking Task Force to review commercial truck operations in Illinois and to make recommendations for improvements.

The recent Notice of Proposed Rulemaking (NPRM) related to the DOT's drug and alcohol testing policy most likely will address a number of the Board's concerns in this area. The Board is in the process of evaluating this proposed rule.

School Bus Safety

In May 1988, near Carrollton, Kentucky, a church activity bus was struck head-on by a pickup truck, killing the bus driver and 26 bus passengers. As a result of its investigation into this accident, the Safety Board recommended that NHTSA upgrade current requirements in Federal safety standards for school buses pertaining to emergency egress, seating material flammability, and fuel system integrity. Also, recommendations were made to the 50 States, church organizations, and activity groups to phase out the use of pre-standard (manufactured prior to 1977) school buses and to purchase only post-standard school buses for passenger transportation purposes.

In September 1989, the Safety Board investigated a collision between a school bus and a truck at an intersection in Alton, Texas. After impact, the school bus left the intersection and plunged approximately 24 feet into a gravel pit partially filled with water. The school bus came to rest on its left side, totally submerged in water. As a result of the crash, 21 of the 81 students on board the bus died. The students who drowned did not receive injuries which would have prevented them from escaping the submerged school bus. Egress from the school bus was hampered because of a lack of emergency exits, and because the rear emergency exit door kept closing while students tried to use it. The remaining students escaped through the side windows on the school bus even though these were not designated as emergency exits. In July 1990, the Safety Board made recommendations to NHTSA and to private school bus organizations to upgrade emergency exit capabilities within school buses.

On March 15, 1991, the NHTSA issued an NPRM proposing that emergency exits be based on the seating capacity of school buses. The final rule based on that NPRM was published on November 2, 1992. The decision to move on the rulemaking initiative for flammability of materials and improvements to current joint strength integrity requirements for school buses is still under consideration by NHTSA officials.

Passage of Administrative Revocation of Driver's License Laws in All States

The Safety Board believes that the passage of an administrative license revocation (ALR) law is the single most important step a state can take to combat drunk driving. Under an ALR statute, the police have the right to confiscate, on the spot, the license of a driver who either fails or refuses a breath test. The effects of ALR are twofold -- the licenses of dangerous drivers are revoked more quickly, and the public is deterred from drinking and driving.

Currently, 32 states and the District of Columbia have adopted some form of ALR. Eighteen states have not passed ALR legislation. Studies have shown that ALR is effective in reducing drunk driving. The Insurance Institute for Highway Safety found that ALR laws reduced the involvement of drivers in fatal crashes by 9 percent during the hours when over half of all fatally-injured drivers were drunk. A study conducted for the Justice Department found that ALR programs reduced recidivism rates among drunk driving offenders. The most significant effect was found in North Dakota where the recidivism rate dropped 41 percent -- from 29 to 17 percent.

The Safety Board has joined with NHTSA to form a national coalition of more than 30 safety, law enforcement, and health groups to work toward passage of ALR in the remaining states. Despite the efforts of this group, there is significant opposition in several states, by various organizations, including trial lawyers associations; state-level civil liberties groups; alcohol beverage industry associations or representatives; and, in a few states, treatment providers and other associations dependent on DWI offender revenue. The Safety Board and NHTSA will work with these groups to increase the likelihood of ALR law enactment.

Provision for Adjustable Upper Anchorage Points for Seatbelts

In its 1988 safety study on the performance of seatbelts, the Safety Board concluded that increasing the level of occupant protection in passenger cars is one of the most effective ways to lower the number of transportation casualties. One way of accomplishing that goal is to increase both the number of passenger vehicle occupants who use lap/shoulder belts and the number who use them properly. Belt use could be increased further by the passage of additional mandatory use laws, by increased enforcement and education campaigns, and by making the belt systems more comfortable and more convenient to use. The Safety Board is fully supportive of all of these steps.

One method of encouraging proper use of seatbelts and discouraging misuse is to improve the fit of the shoulder portion of the belt. In its 1988 report, the Safety Board stated that seatbelts in passenger vehicles should provide the occupants with the opportunity to adjust the shoulder strap to an upper anchorage elevation that is compatible with their body size. The Safety Board recommended that NHTSA evaluate the possibility of requiring an adjustable upper anchorage (AUA) point for the shoulder portion of lap/shoulder belts in newly manufactured motor vehicles. NHTSA indicated that such a regulation is not warranted. However, the agency further noted that, ". . . any devices to improve belt use, comfort, and convenience are beneficial, and NHTSA supports their introduction into the marketplace."

European manufacturers generally offer AUAs, not only for their vehicles sold in Europe, but also for similar models sold in the United States. A few U.S. and Japanese manufacturers currently provide AUAs on some models. Most manufacturers have announced plans to introduce the AUA feature on some, if not all, four door passenger cars. Several manufacturers indicated that engineering concerns preclude use of AUAs on certain models. Some manufacturers also indicated their intent to phase in the use of AUAs on different models over time.

The Safety Board is awaiting progress reports from manufacturers on their efforts to comply with the Board's recommended actions.

Mandatory Use of Seatbelts

On March 1, 1988, the Safety Board published a report on its study of the performance of lap/shoulder belt systems in 167 motor vehicle crashes. Although the Board found several areas in which seatbelt systems could be improved, it also found that lap/shoulder belts clearly offer occupants of motor vehicles substantial protection in a wide variety of crashes. Data reported by NHTSA are consistent with the findings of the Safety Board study. NHTSA estimates that 19,361 lives were saved between 1984 and 1989 by the use of safety belts; of that number, 14,191 were estimated to have been saved as a result of mandatory use laws (MULs).

The Safety Board agrees that MULs are an effective way to increase the use of lap/shoulder belts systems; the Board stated in its 1988 study report that it supports the passage of MULs. When the study was issued in 1988, 31 states and the District of Columbia had already enacted MULs, and Federal legislative proposals were being considered to encourage the other states to enact such laws. Because it appeared that the remaining states would quickly enact MULs, the Safety Board directed its efforts to the development of other means to increase the proper use of seatbelt systems and of ways to improve the efficacy of seatbelt systems.

In April 1991, the Safety Board recommended that the governors and legislative leaders of Alabama, Delaware, Kentucky, Maine, Massachusetts, Nebraska, New Hampshire, North Dakota, Rhode Island, South Dakota, Vermont, and West Virginia enact legislation that would require occupants of all passenger automobiles, vans, and light trucks to use lap/shoulder belt systems at seating positions equipped with such belt systems. Since the safety recommendation was issued, Rhode Island, Alabama, Nebraska, and Delaware passed legislation to require seatbelt use. Currently, eight states have not passed MULs for seatbelts.

MARINE

Passage of State Laws to Combat Boating While Intoxicated

Improvements are needed in recreational boating laws and regulations to deal effectively with alcohol/drug abuse on the Nation's waterways. Although action to improve recreational boating laws has been taken in many states, the Safety Board believes that more can and should be done because in some states alcohol involvement in recreational boating fatalities is as high as 80 percent.

The Safety Board continues to push for passage of state laws addressing alcohol and drug use in recreational boating. To date, 40 states and two territories have strengthened their boating-while-intoxicated (BWI) laws. Most of these actions were taken as the direct result of the Safety Board's study and follow-up activities.

Foreign Cruise Ship Operation out of U.S. Ports

In October 1989, the Safety Board completed a major study addressing significant safety deficiencies related to vessel maintenance, fire protection, and crew qualifications of foreign cruise ships operating out of U.S. ports. With the increasing numbers of foreign cruise ships carrying more U.S. citizens each year, and the Safety Board's lack of jurisdiction to investigate accidents involving these vessels when they are not operating in U.S. waters, the Safety Board is concerned that an acceptable level of safety be maintained by the cruise ship operators. Some success already has been achieved as a result of the Safety Board's initiatives to improve cruise ship safety. Requirements for improved fire hoses, low-level emergency lighting, and fire detection systems were adopted by the International Maritime Organization in April 1992 that satisfy some of the Safety Board's recommendations. Further satisfying Safety Board recommendations was the adoption of regulations to eventually eliminate grandfathering provisions of the international regulations so that older passenger vessels would be required to meet the latest Safety of Life at Sea (SOLAS) fire safety requirements.

The Safety Board's lack of jurisdiction to investigate an accident in international waters involving a foreign-registered passenger vessel was the focus of a request for legislation in 1990. Although Congressional action was not taken, the Safety Board will continue to seek legislative accident investigation authority to insure that U.S. passengers aboard foreign flagged vessels operating from U.S. ports receive the same level of safety oversight that exists for other transportation vehicles.

Fishing Vessel Safety

Each year, approximately 250 fishing vessels are lost and about 100 fishermen die in the commercial fishing industry. The highest loss and fatality rates are for larger vessels, but the fatality rates for vessels under 65 feet long also are extraordinarily high. Coast Guard statistics continue to show a disproportionate number of fishing vessel casualties in relation to the number of vessels in service. Improper loading and progressive flooding continue to be the primary causes in the capsizing, foundering, and sinking of fishing vessels. Physical changes to the vessels without consideration for their effect on stability and watertight integrity also are of major concern.

The Safety Board has investigated numerous commercial fishing vessel accidents since its investigation of the capsizing of the M/V LOBSTA I off Point Judith, Rhode Island, on September 23, 1978. Safety Board recommendations have been issued covering a variety of safety issues including licensing of fishing vessel masters, requirements for emergency position indicating radio-beacons, carriage of basic lifesaving equipment, and crew training. The Safety Board anticipates that the Commercial Fishing Industry Vessel Regulations, issued by the Coast Guard on August 14, 1991, and legislation to implement the licensing plan which the Coast Guard submitted to Congress on January 22, 1992, could have significant beneficial effects in improving vessel and personnel safety in the commercial fishing industry. The Safety Board, however, is concerned that the Coast Guard has not yet developed stability standards for fishing vessels under 79 feet in length.

A significant accident investigated by the Safety Board was the capsizing and sinking of the 162-foot U.S. Fish Processing Vessel ALEUTIAN ENTERPRISE in the Bering Sea on March 22, 1990, which resulted in the deaths of nine persons. The vessel had 31 persons aboard including 19 fish processors (industrial employees who were not mariners) in addition to the crew and two other persons. As a result of its investigation, the Safety Board issued recommendations concerning load line legislation. A load line is one of the lines painted on the side of ship to show the maximum depth to which that ship may be loaded. The recommendations specified that requirements for load lines be based on hazards and risks rather than on unrelated factors, such as fish processing methods, thereby making load line requirements applicable to fishing vessels and fish tender vessels, as well as fish processing vessels.

Assignment of the vessel's load line helps to ensure adequate vessel stability and seaworthiness. Also of concern to the Safety Board was the difficulty that the Coast Guard had in identifying fish processing vessels that were supposed to have load lines.

Following the accident, the Coast Guard determined that about 100 fish processing vessels met the requirements for load lines, but that 60 such vessels did not. The Safety Board further recommended that, pending passage of the proposed load line legislation, the Coast Guard require owners of fish processing vessels to obtain a load line before being issued a certificate of documentation.

PIPELINE

Excess Flow Valves

Since 1971, the Board has advocated the use of excess flow valves to minimize the consequences of major gas leaks on service lines. In 1981, it recommended that DOT require these valves on all single family, high pressure gas service lines newly installed or renewed. Although the DOT has not yet acted to require the use of these valves, several progressive gas distribution system operators have established practices consistent with the Board's recommendation.

The Safety Board found that the cost of an excess flow valve and its installation, when performed at the time a service line is constructed or renewed, is about the same as the cost of purchasing and installing a home smoke detector. However, when a gas service line is being renewed, gas operators do not generally advise the customer of the benefits of this valve, nor do they make these valves available to be installed even if the customer agrees to pay for the valve. Consequently, the Board recommended that the DOT require the installation of excess flow valves on new and renewed single family, high pressure gas service lines. Additionally, the Safety Board recommended that the American Gas Association and the American Public Gas Association encourage their member companies to advise their customers of the safety benefits of excess flow valves and to offer their customers the opportunity to have one installed at cost.

On December 14, 1990, the DOT's Research and Special Programs Administration (RSPA) issued an advance notice of proposed rulemaking to obtain comments on requiring excess flow valves on gas service lines. Most responses were from gas companies that had never used or tested these valves, and the reasons they cited for not using these valves parroted the myths on excess flow valves expressed by the industry associations and by operators that had used only the earliest of valves designs. In contrast to these unsupported claims against excess flow valves were comments from companies that routinely use the valves. One operator acknowledged that it has used excess flow valves for 15 years, that it has about 40,000 valves, and that it has never experienced a failure of any of its valves to operate in an emergency or due to cold weather. Another acknowledged that it has used excess flow valves for 11 years, that it had about 30,000 valves, and that it had never experienced a failure of any of its valves to operate in an emergency or due to cold weather. A third operator with more than 100,000 excess flow valves reported similar experiences. Currently, there are more than one million excess flow valves installed in gas service lines throughout the United States with about 50 gas companies now making some use of excess flow valves, and some routinely installing these valves on new and renewed gas service lines.

Even with the positive experiences of gas operators that use excess flow valves and the RSPA Administrator's commitment to expedite this rulemaking, almost two years have passed without this important safety project being advanced as a rulemaking notice. RSPA now has completed its cost benefit study and determined that the use of these valves is beneficial. The RSPA's delay in completing rulemaking action on this issue has resulted in Congressional action (PL 102-508) to mandate that the RSPA complete within 18 months action on requiring the use of excess flow valves.

HAZARDOUS MATERIALS

Transportation of Hazardous Materials by Rail

Railroad accidents have a significant potential for disaster when hazardous materials are involved. For example, on February 2, 1989, runaway freight cars collided with locomotive units in Helena, Montana. The explosion of one of the tank cars containing hydrogen peroxide caused extensive damage to the city and evacuation of many of its residents. As part of its investigation of this accident, the Safety Board again focused attention on the lack of puncture resistance protection, such as head shields on tank cars used to transport hydrogen peroxide and other high-risk hazardous materials; and the failure of the DOT to determine product/tank car combinations that provide sufficient protection for the transportation of hazardous materials in tank cars.

The Safety Board concluded that needless risks are taken when hydrogen peroxide and other high-risk hazardous materials are transported in tank cars without puncture resistance protection, such as head shields, and that the DOT has not used safety analysis methods to identify unacceptable risks in transporting hazardous materials and to determine the degree of risk presented by the release of hazardous materials. Consequently, the Board recommended that the DOT evaluate its present safety standards for tank cars transporting hazardous materials by using safety analysis methods, and modify existing regulations to achieve acceptable levels of safety for each product/tank car combination. The Safety Board also reiterated to the FRA, RSPA, and the AAR its previous recommendations for head shields on aluminum tank cars, and it urged that action be expedited to require this protection. In addition, the Safety Board conducted a safety study that focused on these and other related issues identified in Safety Board investigations (see Other Significant Issues section).

INTERMODAL

Hours-of-Work/Human Fatigue

In its investigations of numerous accidents in all transportation modes, the Safety Board has identified serious and continuing problems concerning the far-reaching effects of fatigue, sleepiness, sleep disorders, and circadian factors in transportation system safety. The Board has identified a lack of training for both employees and supervisors on the problems associated with work and rest schedules, and the effects such schedules have on safety and performance. It has become apparent to the Board that neither management nor labor in the transportation industry properly considers the adverse effects of irregular and unpredictable cycles of work and rest on vehicle-operating personnel. While there has been some private research conducted on this issue, in 1989 the Safety Board was unaware of any systematic activity by the DOT to address these safety concerns. Consequently, the Safety Board issued safety recommendations to the DOT asking that coordinated research programs be expedited, that educational material be developed and disseminated to transportation industry management and other personnel regarding this issue, and that all DOT regulations related to work scheduling and hours-of-service be reviewed and upgraded to incorporate the results of the latest research.

The Secretary of Transportation responded to these safety recommendations on August 11, 1989, citing: ongoing human factors research in the various modal administrations of the DOT; the DOT Research and Development Coordinating Council; the then proposed DOT National Transportation Policy statement; and ongoing reviews of policy regarding dissemination of educational materials and hours-of-service regulations in the various modal administrations.

In further response to these safety recommendations, in a September 1990 briefing of Safety Board staff, officials from the DOT pointed out that DOT policy included the conduct of a comprehensive program of research on human factors in transportation, including the causes of transportation accidents and the effects of operator impairment, perceptual errors, and fatigue, as well as design and operating changes that can eliminate or reduce those effects. Each of the modal administrations discussed ongoing efforts related to this issue and how the individual efforts fit into the overall DOT policy. A further briefing was provided in October 1991.

On June 10, 1992, the Safety Board again reiterated its concerns covering the need for changes in the work/rest rules of the Hours of Service Act before the House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation and Hazardous Materials. Work/rest fatigue accidents continue to occur even though there may be compliance with the Act.

A prolonged, sustained effort will be necessary to resolve this issue. To ensure positive results, the Safety Board will continue to stress its importance and will cite it in pertinent accident investigations in all modes.

Uniform Industry-Wide Policy on Collection, Processing and Testing for the Detection of Alcohol and Drugs

Investigations of transportation accidents conducted by the Safety Board have created concern about the prevalence of drug and alcohol use and its effect on the safety of the traveling public. Substance abuse has been particularly evident in highway accidents and, to a lesser extent, in rail, aviation, and marine accidents. The Board believes that the problems of drug and alcohol use in transportation should receive the highest level of attention by the DOT, specifically in regard to the DOT's drug and alcohol testing regulations. The Safety Board commends the efforts by the DOT to develop regulations to eliminate drug and alcohol use in transportation.

The Safety Board, however, does take exception to the inconsistent approach taken by the DOT in the formulation of those regulations that pertain to the drug and alcohol testing of persons involved in accidents or incidents. Substantial differences exist among the post-accident/incident sampling and testing requirements for the various transportation modes and between the drug testing policies for DOT employees in safety sensitive positions and for private sector employees. Furthermore, the testing requirements of many pertinent regulations are not sufficient to permit the Safety Board or the modal agencies to identify the extent to which drug and alcohol abuse contribute to transportation accidents.

In 1989, the Safety Board called upon the DOT to adopt uniform regulations for all drug and alcohol testing in all transportation modes and for employees of the DOT in safety sensitive positions. These regulations include: rules for post-accident testing that are separate from other types of testing; the inclusion of alcohol and other drugs presently omitted in some modes; and a requirement that testing be done within four hours of any accident. In addition, instead of the .04 percent blood alcohol concentration standard for intoxication now used in some modes, a BAC standard of 0.00 should be adopted.

Although the DOT continues to consider these recommendations, little specific action has occurred to implement them. The DOT and the Safety Board have had several discussions regarding these safety recommendations and the DOT offered a formal response on August 3, 1990. However, based on that response and on the various meetings held between the Safety Board and the DOT staff, the Board remains concerned that no substantive action has been taken to resolve these issues. On June 25, 1991, the Safety Board reiterated its concerns in this matter in its final report of the December 3, 1990 ground collision of two Northwest Airlines airplanes at Detroit.

On December 15, 1992, the DOT published an NPRM on the testing of transportation industry employees for drugs and alcohol. The Board is evaluating that proposed rule to determine its relationship to this "Most Wanted" issue area.

OTHER SIGNIFICANT SAFETY ISSUES

The following other significant safety issues, which have been identified and explored in completed or ongoing Safety Board investigations and studies, provide additional examples of the Board's efforts to ensure public confidence in the Nation's transportation system.

AVIATION

Piper PA-31 Engine Cowls

On May 1, 1991, a Piper PA-31 crashed near Bennett, Colorado, killing the pilot. The Safety Board investigation of the accident disclosed that the left engine cowl assembly had separated in flight and struck and damaged the upper portions of the vertical fin and rudder. A review of service difficulty reports and accident/incident data disclosed at least 22 other reports of in-flight loosening or separation of PA-31 engine cowls. As a result, the Safety Board issued three recommendations to the FAA concerning this matter, including the need to inspect PA-31 engine cowls at the next annual or 100-hour inspection, the application of decals and/or paint stripes on the cowls to indicate open and locked positions of cowl fasteners, and the amendment of PA-31 preflight inspection procedures to ensure that all cowl fasteners are securely fastened.

Grob Sailplanes/Motorgliders

On August 9, 1992, a Grob G103 sailplane crashed at Truckee, California, during a landing approach after the interconnected left and right wing spoilers became locked in the fully extended position. The left wing spoiler had extended beyond its normal limit and jammed against the spoiler cap access. The wing spoilers are attached to and actuated by pivot arms within the wing structure which move vertically and laterally (inboard and outboard). A stop block normally restricts movement of the outer pivot arm so as to preclude such jamming. However, the stop block in the accident aircraft was worn excessively, and allowed overextension of the spoilers. The wing spoiler systems in Grob G103 series sailplanes are similar to those installed in Grob G102 and G104 series sailplanes and in G109 series motorgliders.

Based on its findings, the Safety Board issued an urgent recommendation to the FAA recommending that the wing spoilers in these aircraft be inspected within the next 10 hours time-in-service to ensure adequate rigging clearance and integral stop blocks. Approximately 350 of these aircraft are currently operating in the United States.

Boeing 747 Autopilot System

In December of 1991, Safety Board participated in a Canadian investigation of an in-flight upset of a Boeing 747 airplane. The cargo plane, carrying a crew of five, slowly rolled into a 95 degree bank while the airplane was being operated on the autopilot. The crew regained control of the airplane and made an emergency landing, averting the loss of the airplane. During the upset, the airplane fell nearly two miles and sustained major structural damage. The investigation revealed areas of concern in the design of the autopilot system. As a direct result of its participation in the investigation, the Safety Board issued recommendations to the FAA to review the autopilot system design and correct any deficiencies for the Boeing 747 series airplanes. Recommendations also were made to examine autopilot systems of other transport airplanes and to incorporate a warning system on the Boeing 747 series airplanes that will alert the pilots when the airplane exceeds normal in-flight bank angles.

In July 1992, the FAA responded favorably to the Board's recommendations. The Safety Board will continue to monitor this issue until its recommendations are implemented.

Thermal Protection Standards for Flight Recorders

Since 1989, eight accidents have occurred in which vital flight recorder information from cockpit voice and flight data recorders was lost as a result of the thermal destruction of the magnetic tape recording media. These six accidents involved 12 of the 92 flight recorders known to have sustained thermal damage by post-impact fires since 1966.

An examination of the fire survival data clearly indicates the vulnerability to post-impact fires of recorders qualified under the nearly 20-year-old guidelines of Technical Standard Orders (TSO) C51a and C84. The 47 percent loss of the recording media experienced by these recorders when exposed to post-impact fires is unacceptable.

Historical fire survival data also indicate the superiority of the recently issued TSO C124 (and C123) over TSO C51a (and TSO C84) in prevention of the thermal destruction of the recording media in post-impact fires. However, the recent loss of data from thermal damage of two recorders that met the fire protection requirement of TSO C124 raises the questions about the adequacy of the fire test requirements in TSO C124 (and C123). In nearly all the accidents in which the recording media were destroyed or damaged by fire, the fires have been of relatively low temperature (from 250° to 850° C) for an extended duration (2 to 46 hours). The test requirements in TSO C124 (and C123) address only the short-term, high intensity fire (30 minutes at 1,100° C).

In May 1992, the Safety Board issued recommendations to the FAA that would phase out recorders that only meet TSO C51a or C84 standards. In addition, the Board recommended that the FAA conduct a study, based on accident case histories, to determine a realistic thermal profile and test protocol for improved flight recorder fire test requirements that reflect the actual environment of post-impact fires. The Safety Board also recommended that the FAA issue new technical standards based on the findings of the study. The FAA concurred with the Board's recommendation and a study is under way at the FAA's technical center. The results are expected early in 1993.

Piper PA-25 In-Flight Wing Separation

On September 21, 1991, a Piper PA-25-235 crashed in a field near Brewton, Alabama, after the left wing separated from the airplane. The airplane had completed a chemical spraying run in a field and was performing a pull-up maneuver when the structural failure occurred. The airplane was substantially damaged and the pilot suffered serious injuries. Examination of the front spar attachment for the left wing disclosed evidence of a progressive separation on the fuselage side of the attachment. There also was an extensive oxidation layer between the sections making up this fitting assembly, indicating that the corrosion had occurred over an extended period of time. However, there are no Piper service bulletins (SB) or FAA airworthiness directives (AD) for the model PA-25 airplane that addressed the wing front spar fuselage attachment assembly. As a result of this investigation the Safety Board issued several safety recommendations to the FAA calling for the immediate inspection for corrosion and cracking of wing front spar fuselage attachment assemblies; repair, by an FAA approved method, of any fitting assembly that contains cracking or corrosion damage; and periodic inspection of the wing front spar fuselage attachment assemblies at intervals that will detect cracking before it becomes critical to safe operation of the airplane. There are approximately 1,272 model PA-25 airplanes registered in the U.S.

The FAA is considering issuing an NPRM to address this matter. However, the Safety Board, in a letter to the FAA dated October 7, 1992, indicated the need for more expedient action.

Boeing 747 Cargo Door Wiring Bundle Chafing

On June 13, 1991, while at John F. Kennedy Airport, Jamaica, New York, maintenance personnel found that the aft cargo door on a Boeing 747 airplane would not open. During subsequent troubleshooting of the door, chafed electrical wires in the wiring bundle between the fuselage and the door shorted and the door began to open without activation of the door open switches. The area with the shorted wires was within a flexible conduit that was intended to protect the wires from damage. The wire chafing was caused by sharp edges of circumferential cracks in the conduit. The cracks were caused by repeated flexing of the conduit during opening and closing of the door. The Safety Board recommended that the FAA require periodic inspection of the aft cargo door wiring bundle on Boeing 747 airplanes and that the flexible conduit on the forward cargo door be evaluated to determine if the underlying wiring bundle also should be inspected.

The FAA is in the process of issuing an NPRM that will address the Safety Board's concerns. The Board will continue to monitor the progress of the FAA's action.

Saab 340A Propeller Gearbox Shaft Failure

On November 21, 1991, the right propeller separated from a Saab 340A airplane. At least several minutes of heavy vibration preceded the separation; the crew did not remove power from the vibrating engine until just before the propeller was lost. Fortunately, the separated propeller did not contact the airplane after it broke free, and no damage or injury resulted. After the separation, the propeller fell into Lake Erie and the airplane landed safely in Buffalo, New York. The loss of the propeller was a result of fatigue cracking in the forward end of the gearbox shaft to which the propeller hub is bolted. No specific cause of fatigue crack initiation has been found. The Safety Board recommended that the FAA require periodic inspection of the gearbox shafts on applicable engines and that pilots be advised to consider shutting down a vibrating engine as soon as practical. So far, the FAA has required only a onetime inspection of the gearbox shafts instead of repeated inspections. The FAA did not act on the Board's pilot advisory recommendation, however, Saab issued an all-operators letter that met the Safety Board's concerns in this area.

Boeing 737 Rudder Control Binding

During the Safety Board's investigation of the March 3, 1991, crash of a Boeing 737 airplane, design discrepancies were found in components of the airplane's rudder system. The investigation determined that galling of the input shaft of the standby rudder system could occur. Although the galling was ruled out as a contributing factor to the accident, the Safety Board recommended to the FAA, on August 20, 1991, that all Boeing 737s be examined for galling, and serviced immediately if evidence of galling is found.

The investigation also determined that a servo valve within the main rudder power control unit could cause the rudder system to malfunction. Although the Safety Board determined that this was not a factor in the accident, the Board recommended to the FAA that test methods be developed to detect this problem until design changes become available and are implemented in the airplane. To date the FAA has not acted on this recommendation. However, a design change has been developed and the Safety Board has urged the FAA to expedite the issuance of a requirement for modification of the Boeing 737 fleet.

Lycoming Engine Fuel Line Cracking

On March 2, 1992, the Safety Board issued a safety recommendation to the FAA regarding serious engine malfunctions in Piper PA-32 series airplanes equipped with Textron Lycoming TIO-540-S1AD engines. The recommendation resulted from the investigation of a PA-32 accident in which two people were killed and the airplane was destroyed. The Safety Board discovered that the malfunction of the engine was caused by an in-flight separation of the fuel injection line between the fuel manifold and the nozzle. Because of inadequate support in the system, the fuel line was subjected to excessive vibration, which eventually led to its separation. The Safety Board determined that this, as well as several other fuel injection line failures, occurred after maintenance personnel failed to reinstall the support clamps following removal of the fuel injection lines for engine overhaul or for other reasons. On April 14, 1992, Lycoming issued a service bulletin that required installation of support clamps on the fuel injection lines of certain serial numbers TIO-540-A model engines. On June 5, 1992, the FAA issued an emergency airworthiness directive (AD), applicable to Textron Lycoming Model TIO-540-S1AD. The AD requires inspection of the fuel injector lines for missing or damaged clamps. This AD also requires replacement of lines that show evidence of damage or fuel leakage. Textron Lycoming has advised the FAA that a revision to the service bulletin will be forthcoming that will be applicable to all engine models with fuel injectors. However, as of December 1992, the FAA had not issued an AD for the other engine models as requested by the Safety Board recommendation.

Ayres S2R-T34 Wing Failure

A safety recommendation was issued to the FAA following the Safety Board's investigation of an accident involving an Ayres S2R-T34 airplane. The airplane, manufactured in October of 1979, was used for agricultural spraying throughout its entire service history. Examination of the wreckage after the accident revealed that corrosion of the fasteners attaching the upper and the lower steel caps to the web caused a complete separation of both caps in the left wing of the airplane. The Safety Board was concerned that, if undetected, the corrosion of the fasteners or other elements of the wing main spar may cause partial or catastrophic failure of the wing structure, resulting in loss of control of the airplane. On May 13, 1992, the Board called for the FAA to require an immediate and periodic inspections of all Ayres S2R series airplanes for evidence of corrosion. As of December 1992, no requirements were developed either by the manufacturer or by the FAA for these inspections.

Piper PA-46 Series Malibu/Mirage Airplanes

Between May 31, 1989, and March 17, 1991, seven Piper PA-46 series Malibu and Mirage airplanes were involved in fatal accidents in the United States, Mexico, and Japan involving in-flight structural failures of the wings and empennage following unexplained departures from controlled flight. In response to the alarming number of these accidents in such a short period of time, the Safety Board conducted a special investigation. The intensive investigation examined a number of areas including the adequacy of the airplane design certification requirements, the aircraft's structural integrity, the aircraft systems, flight performance, autopilot, and human performance, including pilot training. The report, which was adopted by the Safety Board on July 21, 1992, contains details regarding the Malibu accidents and related incidents, and technical information relating to the various phases of the special investigation. In the report the Safety Board issued six safety recommendations to the FAA related to more stringent pilot training requirements for pilots of small pressurized airplanes, the addition of a pitot heat operating light in PA-46 and similar airplanes, revision of checklists in the pilot operating handbook and the airplane flight manual for PA-46 and similar airplanes, and improved training material for integrated flight guidance and control systems. Since the report was issued, there have been two additional accidents involving the Malibu, one in Finland, and one in Sweden. The Safety Board is providing technical assistance to both investigations. The FAA advised the Safety Board on November 30, 1992, that it generally agreed with, and planned future actions to address, the Board's Safety Recommendations.

McDonnell-Douglas MD-80

On December 27, 1991, a Scandinavian Airlines System MD-80 crashed shortly after takeoff from Stockholm, Sweden. The pilot was able to crash land the airplane in an open field with only seven serious and seven minor injuries among the 129 people on board. The accident is being investigated by the Government of Sweden with the assistance of Safety Board investigators. Preliminary data indicate that ice on the wings came loose during takeoff and was ingested by the engines. The ice caused the engines to surge severely, loose power, and eventually flame out completely.

The crashworthiness of the cabin furnishings of this newly-manufactured airplane was of particular interest to the Safety Board investigators, since many of the overhead stowage bins broke free from their mountings and crashed down on the passengers seats, even though the crash loads were below the FAA design requirements. Based upon this investigation, the Safety Board issued five recommendations to the FAA to require that dynamic forces be considered during the certification of overhead stowage bins rather than the current static loads. The FAA responded that it will take positive action to address the Board's concerns. Additionally, the Safety Board has worked with the FAA to determine why the engines were so extensively damaged. The investigation determined that the reaction of the airplane's autothrottle system was incompatible with the power recovery requirements of a surging engine. The FAA since has issued an airworthiness directive that informs pilots to disengage the autothrottle system if an engine surges during takeoff.

The NTSB and the Safety Board of Sweden have exchanged technical information during the writing of the draft report of this accident. It is expected that the Swedish Investigation Board will conduct a technical review of the draft report during the first quarter of 1993.

Aircraft Maintenance

The Safety Board's investigation of the September 11, 1991, in-flight breakup of a Continental Express, Embraer Brasilia EMB-120 airplane, near Eagle Lake, Texas, found that the airplane had undergone maintenance work in the

Continental Express hangar the night before the accident. During the second shift, the scheduled removal and replacement of both the left and right horizontal stabilizer leading edge/deice boot assemblies was initiated. Two mechanics and an inspector assisting in the work gained access to the "T-Tail" and removed the screws from the top of the left side leading edge. However, a maintenance personnel shift change occurred before the work was completed, and the upper screws were not replaced.

The airplane was assigned a morning passenger flight from Houston to Laredo, Texas. The accident took place on the return trip from Laredo to Houston. A detailed investigation was completed on the maintenance procedures and personnel activity at the Houston base of Continental Express. The investigation revealed deficiencies by maintenance personnel in complying with the company procedures outlined in the Company's General Maintenance Manual (GMM), and deficiencies in general supervision and management practices in the maintenance department.

As a result of these findings the Safety Board issued two recommendations to the FAA. The first was to enhance FAA surveillance of Continental Express, and the second was to enhance FAA program guidelines. The FAA has not yet responded to these recommendations.

Airframe Icing

During the past year, the Safety Board issued recommendations to the FAA regarding airframe icing that have emanated from its investigation of three accidents in which an airplane crashed shortly after takeoff with the possibility of snow or ice contaminating the upper surface of their wings. On February 17, 1991, a Ryan International DC-9-15 cargo flight crashed on takeoff at Cleveland, Ohio. Both pilots on board the airplane were fatally injured. As a result of this accident, the Safety Board made several recommendations to the FAA aimed at preventing similar icing-related accidents.

More recently, on March 22, 1992, a USAir Fokker F-28 crashed on takeoff from LaGuardia Airport, New York. Of the 51 people on board, 27 were fatally injured. The Safety Board determined the probable cause of the accident to be the failure of the airline industry and the FAA to provide procedures, requirements, and criteria that would properly guide flightcrews in dealing with departure delays during icing conditions, and the decision by the pilots to take off without positive assurance that the airplane's wings were free of ice accumulation. The Board said that ice accumulation on the wings caused an aerodynamic stall and loss of control after liftoff.

In addition, on November 4, 1991, the Safety Board made several recommendations to the FAA regarding airframe icing as a result of an accident involving a United Express BA-3101 that crashed at Pasco, Washington on December 26, 1989. All six persons on board were fatally injured. The investigation found that an accumulation of airframe ice degraded the aerodynamic performance of the airplane and contributed to the stall and loss of control.

Foreign Object Ingestion

On July 11, 1991, the pilot of a Delta Air Lines Boeing 767-332ER, powered by two Pratt and Whitney PW-4060 turbofan engines, aborted takeoff at Shannon, Ireland, after a pigeon was ingested into the right engine of his aircraft. The accident was investigated by the Government of Ireland, and through its accredited representative, the Safety Board monitored the investigation. The investigation determined that an 18-ounce pigeon had impacted the engine fan causing one fan blade to separate inboard of the mid-span shroud. The liberated blade section subsequently broke into three relatively large pieces and a number of smaller ones. One blade piece exited downward through the cowl and another piece was found protruding through the inlet cowl. Examination of the fracture surface of the fan blade disclosed a preexisting nick, approximately 0.018 inch deep, on the leading edge of the fan blade near where the pigeon impacted the blade. The investigation found that the amount of damage to the fan blade by the ingestion of an 18-ounce bird was considerably greater than would have been expected under the design and certification criteria. However, the certification criteria did not consider the presence of nicks or preexisting damage that could reduce the resistance of the blade to foreign object impact. Based upon these findings, and with the concurrence of the Irish investigators, the Safety Board issued a recommendation to the FAA to modify the certification requirements for turbine engines to require that foreign object ingestion requirements consider the adverse effects of blade damage, such as nicks, scrapes, and gouges, that can occur during normal operation and that may be present during revenue service.

A government/industry meeting is planned for the first quarter of 1993 at Gatwick, England, to review bird ingestion certification requirements.

Aircraft Magnetos

Since 1985, the Safety Board has cited aircraft magnetos as a cause or factor in 92 general aviation accidents involving 22 fatalities and 21 serious injuries. Magnetos are often viewed as integral ignition modules and are inspected, serviced, overhauled, or replaced only when gross malfunction or failure occurs. For example, in performing annual and 100-hour inspections of reciprocating engine-powered aircraft, maintenance personnel normally do not remove magnetos since there is no specific regulatory requirement for their routine periodic removal, overhaul, or comprehensive inspection. As a result, there is no assurance that the magneto components are in proper condition or that the magnetos are capable of continued safe, reliable operation. Therefore, on April 29, 1992, the Safety Board issued several recommendations to the FAA indicating, among other things, that magnetos should be removed, disassembled, and inspected every 500 hours and overhauled at appropriate intervals in accordance with the magneto manufacturer's maintenance guidelines and detailed overhaul procedures. The recommendations affect an estimated 150,000 airplanes. The FAA has drafted an article concerning magneto maintenance for publication in AC No. 43-16 and is considering an AD regarding magneto ignition coils. The Safety Board has asked the FAA to consider requiring periodic magneto inspection and overhaul under its Aviation Rulemaking Advisory Committee.

Aircraft Carburetors

On September 21, 1991, two persons aboard a Cessna Model 172P were killed when the airplane sustained a loss of engine power shortly after takeoff and crashed. The Safety Board's investigation of the accident disclosed that the engine malfunction occurred when the carburetor'sR primary venturi separated from the carburetor and was ingested into the engine intake manifold. The carburetor was a Marvel-Schebler Model MA-A5PA equipped with an older two-piece venturi system, consisting of a separate primary and main venturi. Marvel-Schebler carburetors are installed in thousands of general aviation airplanes. However, the two-piece venturis used on these carburetor models have had a history of service difficulties. A new, improved one-piece combination primary and main venturi casting has been designed for new carburetors and field retrofit, but its installation is mandatory only in Marvel-Schebler MA4-5 carburetors. As a result of its investigation, the Safety Board issued an urgent safety recommendation to the FAA recommending that an airworthiness directive be issued applicable to all Marvel-Schebler and Facet Aerospace MA-3A, MA-3PA, MA-35PA, and MA-45PA carburetors. The AD would require the expedient replacement of two-piece venturi systems with a one-piece combination primary and main venturi casting, in accordance with Precision Airmotive Corporation Service Bulletin No. MSA-2 regarding this subject.

On August 28, 1992, the Safety Board, in response to an NPRM concerning this matter, emphasized the need for expediency in the issuance of the AD. However, to date this action has not been taken.

Flight Attendant Emergency Procedure Training Programs

The FAA requires that air carriers who operate airplanes with nine or more passenger seats under 14 CFR 121 and 19 passenger seats under 14 CFR 135 have flight attendants on board to perform safety related duties. These duties typically include preparing the cabin and the passengers for takeoff and landing; conducting pre-departure and pre-landing safety briefings; maintaining seat belt discipline during turbulence; locating and attacking cabin fires; maintaining communications and coordination among and between the flight crew and flight attendants during emergencies; attending to ill or injured passengers and crewmembers; ensuring that passengers respond properly during a decompression; preparing the cabin and the passengers for a ditching, and if there is a ditching, controlling the flow of passengers into life rafts and operating water survival equipment; and opening the emergency exits and controlling the flow of passengers onto the evacuation slides. Air carriers are required by the FAA to conduct extensive initial training and recurrent training every 12 months thereafter for all flight attendants to provide the knowledge, skills, and abilities to perform emergency procedures

procedures and to operate emergency equipment. The FAA-approved recurrent training programs can employ such training techniques as workbooks that are completed at home before the class, a variety of audio-visual aids, computer assisted teaching aids, and mockups or other training devices that provide hands-on operation of emergency exits, fire extinguishers, megaphones, protective breathing equipment, and oxygen systems. Flight attendants must successfully complete emergency procedures training to qualify for all types of airplanes on which they may be required to serve.

The Safety Board reviewed its investigations of accidents and incidents where information was available on flight attendant performance during emergency situations. There are many examples of flight attendants who have performed extremely well, even heroically, during life-threatening emergencies.

In several recent accidents that involved air carriers that operate under 14 CFR 121, the Safety Board found that although flight attendants provided valuable assistance to passengers during emergency situations, they did not always follow their air carrier's approved emergency procedures, did not perform their duties in accordance with their training, or lacked knowledge about emergency equipment and procedures. Following two recent accidents, the Safety Board determined that the number of injuries sustained by passengers during the emergency evacuations actually increased because of flight attendant actions, although their performance did not adversely affect occupant survival. In other situations the same actions could have disastrous results.

The Safety Board strongly believes that the ability of flight attendants to perform their duties successfully during emergency situations is directly related to the comprehensiveness, realistic nature, and quality of their emergency procedures training. Conversely, regardless of the quality of an air carrier's training program, it is incumbent upon each flight attendant to recognize the importance of active participation in all aspects of their emergency training. Therefore, because flight attendant recurrent training may not adequately prepare flight attendants for actions that they may be required to take during emergency situations, the Safety Board conducted a special investigation into all aspects of flight attendant recurrent training programs. The investigation, which included visits to 12 air carrier training facilities, examined the adequacy of the FAA process to approve the programs and to grant waivers for less than required hours of instruction for recurrent training, and previous Board actions that have addressed training programs.

The Board's special investigation report, entitled "Air Carrier Flight Attendant Training Programs", found inequities and disparities in air carrier flight attendant recurrent training programs that involve the numbers of hours allocated for classroom and hands-on recurrent training and permitted for home study, the number of different types of airplanes in which flight attendants are qualified, and the ratio of instructors to students. Also discovered was the need to improve and standardize FAA procedures for the review, approval, and surveillance of recurrent training programs and for granting waivers to current Federal Aviation Regulations to reduce hours of recurrent training. As a result of this special investigation, the Board issued 13 safety recommendations to the FAA calling for action to address these deficiencies. The FAA response to these recommendations is currently being evaluated.

Embraer EMB-120

On April 5, 1991, an Atlantic Southeast Airlines (ASA) Embraer EMB-120, Brasilia crashed while on approach to the Glynco County Jetport, Brunswick, Georgia. All 20 passengers and three crewmembers were fatally injured in the accident. Among the passengers were former Senator John Tower, Senator Tower's daughter, a NASA astronaut, and other prominent individuals. The investigation of the accident found that severe wear of a component in the propeller control unit (PCU) on the airplane's left engine resulted in a disengagement of the PCU system and subsequent loss of propeller control. The propeller blades then rotated to an angle that was below the flight idle position. The resulting asymmetrical lift and thrust rendered the airplane uncontrollable.

During the investigation, the Safety Board was informed of an incident involving an Air Littoral EMB-120 which experienced a loss of propeller control after takeoff from Rome, Italy. Inspection of that airplane's PCU revealed extreme wear on a different component of the PCU than on the ASA EMB-120. Subsequent investigation determined that, on three previous occasions and with different airplanes, operators have found that a propeller would not operate properly (feather) during ground tests. This information was included in the Safety Board's report on the ASA accident. In that report the Safety Board determined, in part, that contributing to the accident was "the deficient design of the propeller control unit by Hamilton Standard and approval of the design by the Federal Aviation Administration." Testing conducted during the investigation showed loss of aircraft control as a result of a single failure in the system, which is contrary to propeller certification requirements. The Safety Board issued three recommendations to the FAA to review the certification of the particular propeller control system, and similar systems with the same design characteristics from the same manufacturer, to ensure they comply with the certification requirements of 14 CFR 35.21. An additional recommendation was issued urging the FAA to require a periodic inspection of certain components of the propeller control system. The FAA agreed with the Safety Board's recommendations and has required additional inspections of the propeller control system and the development and installation of a fail safe feature to prevent the propeller blade angle from rotating below the flight idle position while in flight.

Rejected Takeoffs (RTOs)

Early in 1990, the Safety Board completed an investigation of pilot training and procedures for rejected takeoffs. During the investigation, flight training at nine airlines in the U.S., chosen as representatives of the spectrum of large and small scheduled passenger airlines operating today, was observed. A special investigation report was issued that contained nine safety recommendations addressing Federal Aviation Regulations on takeoff speeds, the need for ground school and flight training, the execution of RTOs, and the use of autobrakes on takeoff.

This investigation followed several rejected takeoffs that led to runway overruns and the destruction of aircraft, including a McDonnell Douglas DC-10 (see "Most Wanted" section: "Aircraft Brake Certification"). In addition, Safety Board data showed that from 1962 through 1987, 45 RTOs had occurred and had caused at least minor damage to the aircraft involved. Of those 45, nine led to destruction of the aircraft and four resulted in fatalities.

The investigation found that many pilots are not aware of the factors involved in determining an airplane's accelerate-stop distance. In addition, during flight training, few pilots are introduced to non engine-related events that would enhance the accomplishment of the RTO. The Safety Board's recommendations addressed these and other deficiencies uncovered in the investigation.

The Special Investigation Report was issued about the same time as an industry task force report, which also examined ways of improving the safety of rejected takeoffs. Many of the findings and recommendations of the Safety Board investigation were reflected in the report of the industry workshop, which recognized the need for modifications of training and procedures to improve pilot performance in recognizing the need for and execution of rejected takeoffs.

The industry task force continued to meet periodically in 1991 and 1992, with member organizations contributing copies of their current RTO training materials, and with the Boeing Company taking the lead in developing a proposed RTO Safety Training Aid. Following task force review and revision, as needed, the training aid would be made available to the airline industry as a collective contribution toward improving the safety of RTOs.

Infant and Small Child Restraints

The Safety Board recommended that the FAA require that children under two years of age occupy an approved restraint device and that the FAA conduct research into ways to better protect children who are too large to occupy a child safety seat.

During the July 1989, United Airlines DC-10 crash in Sioux City, Iowa, one flight attendant and 110 passengers were killed. Three of the four in-lap infants on board sustained minor injuries, and one infant died of smoke inhalation. None of the infants occupied a child restraint device. The use of FAA-approved safety seats for infants and small children was addressed during the Safety Board's public hearing following this accident. The FAA and the Air Transport Association (ATA) testified to the obvious crash protection benefits for infants and small children who occupy these FAA-approved seats. However, both testified that some airlines do not permit child safety seats on board their aircraft, and further, that some airline employees, not knowing that FAA-approved child restraints may be used, deny their use. Because some safety seats are too large to fit onto passenger seats safely, the ATA and the Society of Automotive Engineers formed an ad hoc committee with the seat manufacturers to explore ways to accommodate the size of the child restraints to aircraft seats. The committee continues to examine ways to reduce the size of child seats.

Since the United accident, the Safety Board has pursued the safety of infants and small children before Congress, the media, and public interest groups to demonstrate the need for the FAA to expedite rulemaking. In July 1990, the Board testified before the House Public Works and Transportation Subcommittee on Aviation endorsing the use of FAA-approved safety seats to protect infants and small children. The Aerospace Medical Association and the Fellows of the American Academy of Pediatrics have endorsed the need for infants and small children to occupy approved restraints when traveling on aircraft.

The Safety Board again addressed the need for infants and small children to occupy FAA-approved restraints in its report of the January 1990, accident involving Avianca Airlines Flight 052, a Boeing 707-321B, which ran out of fuel and crashed in a wooded residential area at Cove Neck, New York. Several infants and small children were held by adults who had placed their seatbelts around their children. Both the adults and children received serious injuries in the crash. Had these infants and small children occupied approved infant/child restraints, their injuries could have been less severe.

On February 25, 1991, and again on April 11, 1991, the Safety Board testified before the Government Activities and Transportation Subcommittee of the House Committee on Government Operations. The Board's testimony pointed out the need for the FAA to require children and infants to be restrained, and to conduct research for methods to restrain children who have outgrown child safety seats. On September 14, 1992, the FAA issued a final rule "requiring airlines to allow the use of approved child restraint systems on their aircraft." The FAA also maintains that children who have outgrown the FAA-approved seats are adequately restrained by existing seatbelts. The Safety Board has advised the FAA that the final rule does not satisfy the Board's concerns and has again urged the FAA to require, rather than merely permit, the use of child restraint systems aboard aircraft.

Statistical Review of Alcohol and Other Drugs in Fatal General Aviation Accidents

This study reviewed the involvement of alcohol and drug use in aviation accidents investigated by the Board since 1982. As part of the study, the Board, using accidents in which the pilot-in-command was fatally injured, compared accident characteristics, pilot characteristics, and accident causes for fatal accidents in which alcohol or other drugs were a factor with those in which there was no alcohol or other drug involvement.

The study showed that the percent of conclusive toxicological tests that were alcohol positive for fatally injured general aviation pilots decreased from about 10 percent (corresponding to about 47 accidents per year) in the mid-70s to about 6.0 percent (about 17 accidents per year) in the late 1980s. However, data on the general aviation pilots fatally injured in alcohol-involved accidents showed evidence of high blood alcohol concentrations (BAC). The mean BAC of the alcohol-involved pilots was 0.15 percent, nearly four times the 0.04 percent BAC intoxication level established by current Federal Aviation Administration regulations. The report also showed evidence of certificate violations (pertaining to biennial flight review, medical certificates, and airman certificates), and flying inexperience for the alcohol-involved fatally injured pilots. The study recommended comprehensive State laws pertaining to alcohol and drug use in general aviation and methods to prevent pilots from flying while impaired by alcohol or other drugs.

RAILROAD

Hours-of-Work/Human Fatigue*

On November 7, 1990, two Atchison, Topeka and Santa Fe Company (ATSF) freight trains collided in Corona, California. The Safety Board determined that the probable cause of the accident was the failure of the engineer of one train to stop for a signal because he was asleep. As a result, several safety recommendations were made to the FRA, ATSF, AAR, United Transportation Union (UTU), and Brotherhood of Locomotive Engineers (BLE) to address chronic and acute fatigue of train crewmembers. The carrier and the operating unions were to cooperate in the development of an educational and counseling program designed to improve crewmember's knowledge of health and diet regimens and methods of avoiding sleep deficits and sleep deprivation. The Safety Board intends to conduct a safety study on railroad work/rest cycles (see Safety Studies section).

The Safety Board believes that the FRA should have the authority to explore the work/rest requirements of railroad employees in safety sensitive positions to provide the maximum safety net attainable and the flexibility that is needed to respond to market demands. Under current law, however, the railroad is the only transportation mode that requires an act of Congress to make regulatory changes to employee work rules.

Safety Oversight Of Rapid Transit Systems

In 1991, the Safety Board issued its safety study, "Oversight of Rail Rapid Transit Safety." Although rail rapid transit is generally a safe form of transportation, the potential exists for a catastrophic loss of life in the event of a collision, derailment, fire, or other emergency involving the evacuation of passengers. Further, the Board determined as a result of its study that detecting and analyzing accident trends of rail rapid transit is difficult because of inadequate data collection and analysis. Consequently, the Board urged the Federal Transit Administration (FTA), formerly the Urban Mass Transportation Administration, to develop an improved accident/incident reporting form.

In its study, the Safety Board concluded that the primary responsibility for oversight of rail rapid transit safety properly resides with the state and local governments in which the systems operate. Existing state oversight programs, however, vary greatly in their effectiveness and scope. The Board further concluded that the Federal government, through the FTA, does have a role in assuring that this oversight responsibility is met. The FTA should develop guidelines that can be used by state and local authorities. Consequently, the Safety Board urged all states in which rail rapid transit systems currently are operating to develop or revise, as needed, existing programs to provide for continual and effective oversight of rail rapid transit safety. The Board concurrently urged the FTA to develop guidelines that address the critical elements of an effective oversight program.

Section 28 of the Federal Transit Act, as amended, directed the FTA to issue a rule requiring states to oversee the safety of rail fixed guideway public transportation systems not regulated by the FRA. On June 25, 1992, the FTA published an Advance Notice of Proposed Rulemaking (ANPRM), "Rail Fixed Guideway Public Systems; State Safety Oversight." On August 20, 1992, the Safety Board commented in detail on the ANPRM stating that it supported the intent of Section 28 of the Federal Transit Act. The Safety Board also encouraged the FTA to proceed in its rulemaking activity with that goal in mind. The Safety Board will continue to monitor the progress of this rulemaking and will follow up with the FTA and the states to achieve implementation of the full intent of the Board's safety recommendations.

Locomotive Crashworthiness

Since 1970, the Safety Board has pursued, as a priority item, the goal of improving the crashworthiness of locomotives as it relates to protection of on-board crewmembers. After many years of discussions, meetings, and recommendations, the industry, with the FRA's concurrence, established three design standards that would be incorporated in new locomotives. These voluntary requirements became effective in August 1990. Since this date, all new passenger and freight locomotives build in the United States to be used in interchange service are to be built to the new specification. Currently, there are approximately 400 locomotive units built to the new standards operating in this country.

One of the new locomotive construction requirements was the use of anticlimbers to reduce the tendency of one locomotive to override another. The thickness in locomotive sheathing was also increased in and around the control cab to better protect the crew. Finally, collision posts were required to be designed to restrict or reduce the destruction of the locomotive cab in the event a collision. The design changes are intended to improve the survivability of occupants in the locomotive control cab.

No crash testing was performed by the industry or the FRA prior to adoption of the required design changes. However, the FRA has recently undertaken research, based upon Safety Board recommendations, to determine analytically through a desk evaluation what can be expected to occur in a head-on collision of locomotives at various speeds. This information is expected to be available soon. In addition, Congress has mandated that the FRA conduct full-scale crash testing to determine the cost and safety benefits of at least ten innovative design concepts. The Board's findings concerning actual in-service collision observations from accidents would undoubtedly be helpful in supplementing a proposed planned test crash by directing research to identified problem areas. The Board is therefore initiating a study of the performance of the newly designed locomotives involved in collisions and derailments.

Continuous Welded Rail (CWR)

Currently no Federal standards exist specifically for CWR. On March 29, 1982, the Safety Board sent a letter to the FRA in response to an NPRM, "Track Safety Standards; Miscellaneous Amendments", that proposed to drop Section 213.119, Continuous Welded Rail from the FRA track safety standards. Despite the Safety Board's concerns, the FRA removed the CWR section because it felt that the individual railroads already had adequate rules and practices in place to insure a safe CWR track structure, and that, since there was no accurate means to measure longitudinal rail force, such regulations were unenforceable.

In its investigation of the derailment of an Amtrak train at Batavia, Iowa, in 1990, the Safety Board re-addressed the importance of temperature control of CWR and its ability to absorb the dynamic forces of trains in order that railroad operations may be conducted safely. Although much information has been developed from the research of the behavior of CWR, much of the present knowledge about track structure capabilities and limitations is still empirical because of the wide variety of factors that affect neutral rail temperature such as ambient temperature, location, maintenance, and rail traffic. Standards relating to track structure should include a safety margin sufficient to reflect the inability to predict, with reasonable accuracy, the effects of operating conditions upon safety. The Safety Board believes that the FRA should reinstate and expand Section 213.119 to ensure proper temperature control procedures for installing and maintaining CWR.

Recognizing the need for improvements in railroad safety, the Congress, on September 3, 1990, passed the Rail Safety Enforcement and Review Act (PL 102-365). This legislation required that the FRA initiate a review of the track safety standards and as a minimum include an evaluation of the procedures associated with installation and maintenance of continuous welded rail.

On November 16, 1992, the FRA issued an ANPRM to address proposed revisions to the track safety standards. The FRA plans to address the problem of track stability when CWR is incorporated as part of the track structure. The FRA also is continuing to test devices that measure longitudinal rail forces at the Transportation Test Center in Pueblo, Colorado.

Grade Crossing Safety

Throughout the United States, new public transit systems are opting for rail. The latest example is Metrolink in Southern California. Started on October 26, 1992, Metrolink operates on the same track as freight trains, and is vulnerable to grade crossing accidents. Metrolink operations are push-pull: that is the train can be operated either forward or backward, regardless of the locomotive's position. When the locomotive is being used to push the train, the engineer occupies the leading passenger car, or the cab car at the leading end.

Urban commuter rail systems that operate in push-pull mode over existing freight lines cross numerous public and private roads in densely populated urban areas. The systems operate at high speeds and if a train in a push-mode is involved in an accident, the control car, not the locomotive, bears the brunt of the impact from the collision forces. Almost all of the active efforts in the area of crashworthiness have been directed toward locomotives.

The Safety Board is currently investigating an accident on Metrolink that occurred in Los Angeles, California on November 25, 1992. The accident underscores the current issue of the use of cab control cars with respect to the area of grade crossing safety. In this accident a Metrolink commuter train was traveling at about 76 mph, operating in the push mode, when it struck an empty asphalt truck at a private grade crossing, causing extensive damage to the cab control car. Another issue identified in this accident investigation was the necessity of the private crossing. The post-accident discussions with the parties to the investigation resulted in the closing of the crossing.

Toxicological Testing

Previous recommendations that resulted from a Safety Board study on "Alcohol/Drug Use and Its Impact on Railroad Safety" requested that the FRA expand its regulations to require post-accident drug and alcohol testing of all employees in safety sensitive positions that are reasonably associated with the accident. The Safety Board continues to believe that maintenance-of-way employees, maintenance-of-equipment employees, supervisors, and others in safety-sensitive positions on the railroad should be included in post-accident toxicological testing. FRA's recent requirement for the random testing of certain railroad employees will be evaluated as quantifiable data becomes available.

Railroad Event Recorders

The Safety Board has long supported actions to mandate event recorders on locomotives within the FRA's jurisdiction. For example, as long ago as July 1978, the Safety Board issued a safety recommendation to the FRA promoting the installation of event recorders in locomotives.

In November 1988, the FRA issued an ANPRM concerning the need for event recorders and the status of event recorder technology in response to the Rail Safety Improvement Act of 1988 that directed the FRA to issue rules and regulations requiring the installation and use of event recorders by January 22, 1990. The FRA issued a subsequent NPRM on June 18, 1991, and held two public hearings concerning the rulemaking, but has not yet issued a rule. The Safety Board provided comments to the FRA on its NPRM suggesting that all locomotives operating on tracks outside of yards be equipped with event recorders. Further, technical standards should be developed for the data recording formats and for crashworthiness.

Locomotive Fuel Tank Integrity

During the course of its railroad accident investigations, the Safety Board has observed many instances of locomotive fuel tanks that ruptured during collisions. Little significance was attributed to this occurrence because diesel fuel rarely resulted in serious injury. Accidents in Sugar Valley, GA, and Corona, CA, in 1990 indicate that five of the six crewmembers fatally injured suffered extensive burns and smoke inhalation. These accidents heightened the Safety Board's concern about the potential for diesel fuel fires in railroad accidents to fatally injure trapped crewmembers, consume cargo, contribute to hazardous materials fires in the train, and endanger nonrailroad property near the accident site.

The study found that, in the 29 locomotive derailment accidents investigated by the Board in 1991, diesel fuel spills occurred from 47 (56 percent) of the 83 locomotives that derailed. Further, fuel ignition occurred on 23 (28 percent) of the 83 locomotives that derailed. The Board recommended that research be conducted by the FRA, the AAR, and the locomotive manufacturers to determine if the locomotive fuel tank can be improved to withstand forces encountered in the more severe locomotive derailment accidents, or if fuel containment can be improved to reduce the rate of fuel leakage and fuel ignition.

HIGHWAY

Truck Driver Use of Seatbelts

Each year approximately 1,000 operators of heavy trucks are killed in traffic accidents. Although many drivers are killed when their cabs are crushed, it has been estimated that 26 percent of the drivers killed each year could have survived if they had been wearing three-point restraints.

This estimate does not include the lives of non-drivers that could be saved or the potential for injury reduction attributable to seatbelt use in nonfatal accidents. Further, because most trucks are equipped with lap-only belts, even more lives could be saved if drivers had access to lap/shoulder belts.

Although seatbelt use rates have increased in recent years, a large number of truck drivers still do not wear belts. On April 22, 1992, the Board issued 13 safety recommendations to government agencies and industry organizations directed at increasing belt use among truck drivers. Reasons for nonuse generally center around poor enforcement and inadequate driver education regarding seatbelts. Although, the Federal Highway Administration (FHWA) requires seatbelt use, and this regulation has been adopted by 48 states, enforcement is not generally a priority. The Board recommended that the FHWA and the Commercial Vehicle Safety Alliance actively pursue methods of improving enforcement of this regulation. In addition, the Board recommended that industry groups include information in educational materials about the importance of wearing lap/shoulder belts and develop and implement incentive programs related to lap/shoulder belt use. Overall response to these recommendations has been positive. Responses have not yet been received from the Alliance of American Insurers and the Commercial Vehicle Safety Alliance.

Large School Bus Loading Zones and Occupant Protection

The Board's recommendations concerning the crashworthiness and operation of both public and private school buses have resulted in tremendous improvements in school bus safety and injury mitigation. However, when catastrophic accidents involving school buses do occur, they are highly visible, generate intense emotions, and sometimes require an independent investigation to reassure public confidence in school bus safety. Since the majority of fatalities occur outside the bus, the Safety Board is focusing its efforts on school bus loading zone accidents. Specific target areas include driver training, driver visibility, student egress path, and issues relevant to the handicapped and younger child. Since these tragedies typically occur as single fatality events, they go largely unnoticed by the general public.

Also, the Safety Board recently has learned of a type of passenger restraint similar to those used on amusement park rides, called the R-BAR, which is being installed on large school buses. The restraint, a swing type padded bar that is attached to the seat back frame in front of the passengers, is pulled down onto the laps of the seated passengers to provide protection.

A recent Transportation Research Board (TRB) report identified potential safety problems with the bar restraint system. It noted that instability and poor positioning of the bar could result in intrusion injuries to the upper abdomen, fractures of the lower spine, or crushing injuries to the upper legs, whereas a belt worn across the lower pelvis will remain in that position and passively follow the direction of body movement.

Since the real world effectiveness of this type of restraint appears to be questionable, the Safety Board will attempt to determine how many school buses are equipped with bar restraints and develop a notification network to learn of accidents involving school buses so equipped. Where appropriate an investigation will be conducted.

Heavy Truck Wheel Runaway Accidents

Because of the unusual circumstances and recent increase in visibility of runaway truck wheel accidents, the Safety Board undertook a special investigation into the five truck "wheel runoff" accidents that have occurred since August 1991. These accidents resulted in six fatalities and numerous injuries. The special investigation, which was completed in the summer of 1992, focused on issues including prior vehicle maintenance, mechanical defects, and vehicle inspection.

The results of the special investigation indicate that wheel run-off accidents occur relatively infrequently when compared with other vehicle related heavy truck accidents. Wheel separations result primarily from three mechanical deficiencies: undertorquing of wheel nuts; wheel bearing failures; and overtorquing of wheel nuts.

Elderly Driver Safety

The Safety Board is looking into several accidents involving elderly drivers. Since April 1992, there have been five highly visible accidents involving elderly drivers in which 8 pedestrians were killed and 25 injured. Three of the accidents are being investigated by the Board. While the threshold age of an elderly driver has not been defined, the age of the five drivers involved in the aforementioned accidents ranged from 70 to 87. In each case the vehicle accelerated out of control and each driver alleged that the vehicle was defective. However, a mechanical inspection of four of the vehicles did not reveal any discrepancies. The inspection of the fifth vehicle has not been completed.

Since there is a growing elderly driver population with perhaps unique driving problems, the Safety Board will continue to investigate selected accidents involving this issue. The investigations will be aimed not only at determining the probable cause of the accidents, but also on identifying the unique problems of the elderly driver, and developing recommendations that will reduce the risk of them being involved in highway accidents.

Adequacy of Passive Restraints

The Safety Board is in the final stage of completing a special investigation of selected highway accidents involving vehicles with automatic or passive restraint systems. These systems are now required by the DOT for all passenger cars. Manufacturers utilize either air bags or automatic belts to comply with the regulation. The Board has investigated approximately 56 crashes involving 1990 or 1991 vehicles equipped with these systems.

In general, these systems are performing well in crashes. However, the Board has noted several areas where safety could be improved. Specifically, in cases with manual lap belts and automatic upper torso belts, many users are not fastening the lap belt portion of the system. Severe trauma has been documented in some cases when the upper torso belt was used alone.

Similarly, many occupants riding in air bag equipped vehicles are not wearing the manual belt systems. The total restraint system effectiveness is reduced in such situations. This phenomenon was particularly noted in crashes involving police vehicles. The role of police as a model in restraint use, and their enforcement of restraint regulations, is undermined as a result. The Safety Board's special investigation report is scheduled for completion by early 1993. Recommendations to address the misuse issues highlighted above will be made to the appropriate agencies or private entities.

MARINE

Liftboat Safety

Liftboats are self-propelled vessels with features of both conventional offshore supply vessels (OSVs) and self-elevating mobile offshore drilling units (MODU). Casualty figures for a three-year period showed that 5.6 percent of the fleet of about 250 liftboats was involved in sinking or capsizing; and the casualty rate for liftboats is eleven times greater than that of traditional OSVs. From 1980 to 1987 approximately 18 percent of the liftboat fleet was involved in an accident or casualty involving major damage or loss of life. Of 57 casualties during the period, 10 lives were lost, 33 persons were injured, and liftboat damage costs alone exceeded $20 million.

The Coast Guard had been inspecting liftboats under either the regulations pertaining to "Cargo and Miscellaneous Vessels" or those pertaining to "Small Passenger Vessels." In 1980, the Coast Guard published rules requiring previously uninspected OSVs to be registered with an Officer In Charge of Marine Inspection before January 7, 1982, and to be certificated within two years of registration. In August 1988, because of the similarities of liftboat and conventional OSV operations, the rulemaking projects for liftboats and OSVs were combined, and the comment period was extended until October 31, 1989. The proposed Final Rules have been drafted and are undergoing clearance within the Coast Guard before being forwarded to DOT, and then OMB.

In 1989, the Safety Board investigated two liftboat accidents (M/V TITAN and M/V AVCO V), which together resulted in the loss of 13 lives. The Safety Board is concerned about the safety of offshore workers being transported as passengers aboard liftboats insofar as liftboats are not designed for passenger vessel service. The Safety Board is monitoring 35 safety recommendations which it issued in connection with both of these liftboat accidents. The response to recommendations dealing with material and operational features concerning liftboats has been positive. However, the Board continues to be concerned about the numbers and safety of offshore workers or persons in addition to the crew that may be transported aboard liftboats.

The Safety Board takes exception to the Coast Guard's rulemaking proposal to create the term "offshore workers" and limiting the number of persons carried to not more than 36. This violates the statutory limits of carrying not more than 16 persons in addition to the crew on domestic voyages and not more than 12 passengers on foreign voyages. The Coast Guard indicates that its proposed regulations concerning OSVs and liftboats have been prepared and will be published as soon as the moratorium on creating new regulations is lifted.

Crew Manning and Fatigue

In every accident investigation, emphasis is directed toward examining all elements of human performance, especially fatigue. The most significant marine accident involving fatigue by operating personnel was the March 1989 grounding of the EXXON VALDEZ in the Prince William Sound, Alaska. In that accident, the Safety Board found that the navigation watch officer failed to maneuver the vessel properly because of fatigue and excessive workload. This particular watch officer had voluntarily remained on duty beyond his normal watch in order to give the officer scheduled to relieve him additional time to rest, because that officer was fatigued. The most recent case investigated by the Safety Board where fatigue was a causal factor was the grounding of the Greek tankship WORLD PRODIGY in Buzzards Bay near the coast of Rhode Island on June 23, 1989. In that accident the vessel's master had been on the bridge for approximately 36 hours with virtually no rest, because the vessel had encountered fog and vessel traffic as it approached the East Coast of the U.S. On February 21, 1991, the Safety Board found that the cause of the grounding was the master's impaired judgment from acute fatigue, which led to his decisions to decrease the navigation watch and to involve himself in non-essential tasks during a crucial period in the ship's navigation.

The investigation of the capsizing and sinking of the U.S. fish processing vessel ALEUTIAN ENTERPRISE on March 22, 1990, revealed that many of the crew suffered from fatigue, particularly the processing personnel who worked very long hours often foregoing meals to acquire needed sleep. The Safety Board again called attention to the potential deleterious effects of long-term sleep loss. Although there were no indications that sleep loss contributed to this accident, the Safety Board continues to have serious concerns about the far-reaching effect of long work hours and resulting fatigue such as existed on board this U.S. fish processing vessel.

The Safety Board will continue to give high priority to investigating accidents where fatigue could be a causal factor. The Board also will monitor the application of existing laws, regulations, and company operating practices related to manning and hours of work to determine if they ensure that crewmembers receive proper rest.

Maneuvering Factors in Harbors and Channels

Whenever large vessels transit the entrance channels to ports and harbors in relatively shallow water, they become less maneuverable because of their proximity to the bottom and the sides of the channel. In addition, hydrodynamic forces caused by other vessels moving nearby are often difficult to predict. These forces can increase very quickly affecting the control of the vessel. The increased size of present day vessels magnifies hydrodynamic forces significantly. Because of these phenomena and the greater number of large vessel transits in the waterways, the risks of collisions, groundings, fire, and pollution have increased while the channels have remained essentially unchanged.

The Safety Board has addressed these matters in a number of accident reports and has made recommendations to the Coast Guard and pilot associations pointing out that modern simulator training can supplement the traditional hands-on training, particularly where training in hydrodynamic interaction is lacking. In 1988, a 918-foot long French tanker, CAMARGUE, and a 650 foot long Swedish auto-carrier, FIGURO, were involved in a collision during an overtaking situation in which the auto-carrier went completely out of control during the critical phase of the maneuver. The Safety Board had a study made of the hydrodynamic forces involved and made several recommendations to the local pilot's association and to the Coast Guard regarding the overtaking of large vessels in the Houston Ship Channel and the upgrading of pilot skills by the use of simulator training.

A similar accident that occurred in the same waterway in 1990 was the result of a meeting situation followed by a loss of control of one of the vessels due to forces created by bank suction and ship interactions. The subsequent collision of the 601-foot long Greek tankship SHINOUSSA with a multiple barge tow resulted in major pollution. Again, the narrow confines of the waterway, vessel size and speed were factors contributing to the loss of control of the vessel.

The investigation of a fire and explosion that occurred on a 392-foot long tankship, the JUPITER, discharging a cargo of gasoline at a Total Petroleum terminal at Bay City, Michigan, in September 1990 revealed that the accident was initiated by the hydrodynamic effects produced by the passage of a large vessel that caused the smaller tankship to surge heavily fore and aft in its berth. Because the tankship's crew allowed slack to develop in one of the mooring lines, the tankship's surging quickly increased until there was enough momentum to break a wooden piling from the cluster of pilings used to moor the stern of the vessel, thus allowing the tankship's stern to swing away from its berth. As the tankship moved away, the cargo hose ruptured and gasoline spilled onto the vessel's deck and the pier. Almost simultaneously an electric cable for remote operation of valves on the pier parted, producing sparks that ignited the spilled gasoline. There are prior instances of passing vessels adversely affecting moored vessels at the terminal. This possibility was recognized by the tankship's crew who were attempting to tend the tankship's mooring lines as necessary during the passage of the other vessel. The accident demonstrated that hydrodynamic forces can produce extraordinary effects, showing a need for passing vessels to proceed very slowly and to maintain sufficient distance from other vessels to minimize such effects.

In August 1992, one of the largest passenger vessels in the international cruising fleet, the British registered QUEEN ELIZABETH 2, grounded while departing Vineyard Sound, a waterway on the north coast of Martha's Vineyard, Massachusetts. The Safety Board's investigation of the accident is presently ongoing. One of the major issues in the investigation is the squat (increase in draft) and shallow water effects due to the speed and draft of the vessel. Notwithstanding that the vessel grounded on uncharted rocks, the severity of the damage may have been amplified by the hydrodynamic effects of the vessel's speed and its accompanying increase in draft.

There is no single solution to the problem of ship accidents induced by degraded maneuverability. Often the solutions need to be tailored to the characteristics of the waterway. The Safety Board will continue to investigate these types of accidents to find the most effective solutions that will protect our ports and waterways.

Bridge Resource Management

Accidents investigated by the Safety Board, as well as studies conducted by the International Chamber of Shipping, the International Maritime Organization (IMO), and the Coast Guard repeatedly have identified human error, in one form or another, as the primary causal factor in more than 75 percent of all marine accidents. Specifically, many of the rammings, groundings, collisions, and other marine casualties were attributable to a common core of problems which include the failure of the members of the bridge team to: 1) properly plan, execute, and monitor their vessel's navigation; 2) establish clear lines of communication between members of the bridge team; 3) properly utilize tasks and responsibilities; and 4) effectively utilize all resources available to them, such as equipment, personnel, and information.

Several U.S. shipping companies, government agencies, and industry training institutions have undertaken pioneering efforts to determine how accidents ed by human error can be prevented. The result of their efforts was the development of resource management training commonly referred to as Bridge Resource Management (BRM).

BRM shares similar basic principles with Cockpit Resource Management, which has enjoyed great success in the aviation industry. The purpose of BRM is to instill in mariners methods to ensure the effective use of all available resources to prevent accidents that can occur as a result of human error. Bridge resource management training, which easily could be applied to both civilian and military bridge watchstanders, including masters and commanding officers, was developed to provide bridge watchstanders, who frequently operate under high workload/high stress conditions, with strategies for accomplishing their tasks in a coordinated, efficient, and controlled manner. It is a course of study intended to provide the industry with an understanding of the complexities of the human element in shipboard operations. Above all else, such training, through a series of classroom lectures and simulator-based training, stresses techniques for team-building so that bridge watchstanders are not only better prepared to meet the everyday demands of the job, but also are better prepared to respond to unexpected events. Because shipowners are becoming increasingly aware of human error as a cause of accidents and because BRM training, designed to reduce the occurrence of human error, utilizes many common sense principles that have been in use in various segments of the maritime industry for many years (but not always uniformly applied), such training is gaining credibility within the industry.

As a result of its investigations of the groundings of the cruise ship BERMUDA STAR, the Greek tankship WORLD PRODIGY, and the U.S. tankship STAR CONNECTICUT, the Safety Board determined that the application of many of the principles espoused in BRM training probably could have prevented each of these accidents. As a result of the investigations of the WORLD PRODIGY and the STAR CONNECTICUT groundings, for example, the Safety Board recommended to the Coast Guard that BRM programs be required for all deck watch officers aboard U.S. flag vessels of more than 1,600 gross tons as a prerequisite to obtaining, renewing or upgrading a license. In the WORLD PRODIGY report, which involved a foreign flag vessel, the Board recommended that the Coast Guard propose to the IMO that the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW) be amended to require BRM training for foreign deck watch officers as well. While BRM training is enjoying increased acceptance in this country; its acceptance by the international community remains negligible. This is of particular concern to the Safety Board because more than 90 percent of our international commerce is carried to and from our shores aboard foreign flag vessels; and most marine accidents involving oceangoing vessels that occur in U.S. waters involve foreign flag vessels and crews.

Presently, neither Coast Guard regulations nor the provisions contained in the STCW require BRM training for applicants seeking an original, upgrade, or renewal of a deck license. Because human error continues to be the primary cause of marine accidents and because such accidents continue to occur too frequently, the Safety Board will continue to focus on this significant safety issue in its marine accident investigations.

Tank Ship Safety

Tank ship accidents continue to concern the Safety Board. Recent Safety Board investigations of accidents involving the MANDAN, STAR CONNECTICUT, SHINOUSSA, JUPITER, and the SURF CITY revealed a variety of failures that continue to occur, including a steering gear failure, faulty navigation resulting in groundings and collisions that produce explosions and fires, and the failure to assess hydrodynamic effects on the controllability of passing vessels. Oil spills were associated with nearly every accident, and in some cases the spilled cargo was burned in an ensuing fire. The investigations also reveal causal elements in the areas of training and judgment, such as decisions about overtaking and meeting other vessels in a narrow waterway, passing close abreast of a moored vessel, and procedures to utilize available redundancy to regain control when a mechanical failure occurs in one component of the steering gear.

The Safety Board has made recommendations to national agencies and international organizations and associations concerning the routing of ballast piping through cargo tanks, the inclusion in the inert gas system of the ballast tanks and other void spaces within the cargo block, changes to the tank entry procedures, and steering gear operational procedures and performance standards.

With tank ship accidents continuing to occur on the navigable waters of the United States from a wide variety of causal factors, the Safety Board will continue to give a high priority to investigating such accidents and working to improve the safety of all tank ships.

PIPELINE

Cast Iron Pipe Replacement

On August 29, 1990, a natural gas explosion and fire destroyed two row houses and damaged two adjacent houses and three parked cars in Allentown, Pennsylvania. One person was killed, and nine people, including two fire fighters, were injured. The Board's investigation disclosed that water eroded the soil foundation beneath the 4-inch-diameter cast iron gas main. This caused the pipe to crack circumferentially, releasing gas that then migrated into the basement of an adjacent building where it ignited, exploded, and burned. Post-accident metallurgical examination revealed that the cast iron main, which had been installed in 1903, was significantly weakened by graphitic corrosion.

The Safety Board has found in its investigations that most gas operators do not submit failed segments of cast iron pipe for laboratory analysis to determine the extent to which the pipe has been weakened by graphitic corrosion. Most often, they have done little more than require a mechanical check of the pipe to determine if it could be damaged easily, an indication of severe graphitic corrosion damage, and to then install a leak clamp around the crack to keep the pipe in operation. Gas pipeline operators' cast iron replacement policies, for the most part, have been to replace cast iron pipe within a city block after a main has experienced three breaks or to replace the mains within a street intersection after they experienced two breaks.

The Safety Board had determined previously that industry practices were inadequate to identify and remove from service gas mains that threaten public safety. This is because these practices do not generally include consideration of previous graphitization, corrosiveness of the soil, bending strength of cast iron pipe (especially those that are 8-inch-diameter and smaller), leak history, and potential pipe damage in areas being renovated or otherwise subjected to major adjacent excavation operations. In its 1986 report on a natural gas accident at Derby, Connecticut, on December 6, 1985, that killed six people and injured 12 others, the Safety Board addressed the need for effective, programmed replacement of cast iron gas mains. In that report, the Board acknowledged that, much like the gas industry, it had previously treated the cast iron pipe failures on a case-by-case basis with recommendations for corrective action being made only to the gas operator. The Board also found that the amount of cast iron pipe in gas distribution service had decreased over the years while the number of reportable accidents had remained relatively constant, indicating that the number of leaks per mile of cast iron main was increasing. The Board acknowledged that some operators of large distribution systems had already begun collecting the data needed to identify cast iron systems most prone to failure and had established replacement programs. However, most operators had not and there was no guidance to assist or encourage them to develop cast iron replacement practices. The Board concluded that it was time for the industry to begin phasing out cast iron piping systems, many of which had served the public for more than 100 years.

In the years since the Board's report, only limited industry action has been taken to encourage the replacement of deteriorated and aging cast iron gas distribution systems. In 1986, the Gas Research Institute issued its report, "Cast Iron Maintenance Optimization System," to provide gas operators with an evaluation model for deciding whether to repair or replace cast iron pipe. This computerized model provides an analytical tool that could assist operators in estimating the probability of breaks and leaks on individual segments of cast iron gas mains, evaluating repair versus replace options, and identifying replacement priorities. The Safety Board understands that the AGA Gas Piping Technology Committee has recently completed its guidelines to assist gas operators on developing cast iron replacement policies.

The Safety Board is pleased that the gas industry now has an analytical tool and guidelines to aid gas operators in establishing cast iron system replacement policies. However, it has taken six years to get to this point and there is no assurance that the gas industry operators will implement effective cast iron replacement programs in a timely manner to reduce their threat to public safety. RSPA has recently sent out an advisory bulletin telling gas pipeline operators that its rules require a program for identifying segments of cast iron pipelines that endanger public safety and for replacing those segments.

Safety of Military Base Gas Systems

On December 9, 1990, a gas system valve between one of Fort Benjamin Harrison's gas distribution systems and a disconnected segment was inadvertently opened, allowing gas to enter residential buildings that had previously received their gas from the disconnected segment. Gas accumulating in one of the buildings was ignited. The resulting explosion killed two occupants and injured 24 persons. One building was destroyed and two others were damaged.

Although the U.S. Army made many improvements in its operations since the accident, the Safety Board found in its report on the accident that many improvements were still necessary for the Army to safely operate natural gas distribution systems. The Army's gas distribution systems need to be managed by persons qualified by experience and training in gas distribution system design, construction, and operations. The maps used in operating gas systems require updating to eliminate inaccuracies and to include omitted information. Annual assessments of adherence to design, construction, maintenance, and operation standards should be performed to identify and correct deficiencies. Also, the U.S. Army should require that its gas pipeline systems conform to the Federal design, construction, operation, and maintenance requirements that are applicable to civilian gas distribution systems. The Board issued eight recommendations to the Secretary of the Army for improving its gas pipeline safety operations. The Army has responded to the Safety Board on several significant improvements it has made for upgrading personnel qualifications, imposing safety standards and modifying its maintenance on gas systems.

The Board compared the gas pipeline operations of the Army with those of the U.S. Navy and the U.S. Air Force and found several areas where similar deficiencies appear to exist. Consequently, the Board recommended that the Secretaries of the Navy and the Air Force evaluate their gas pipeline safety programs to identify and correct deficiencies, if any.

Improved Pipeline Isolation Capability

The Safety Board has supported greater use by the pipeline industry of remote and automatic valves to promptly isolate failed portions of pipelines. Pipeline operators, after experiencing accidents that were investigated by the Safety Board, have recognized the value of these types of valves and have improved the capability of their pipeline systems to isolate future failures. Based on findings in its March 1991 report, "Emergency Flow Restricting Devices Study," the RSPA now is considering a proposed rulemaking to require the installation of remotely-operated valves on pipelines at either side of water crossings and at locations in close proximity to the public. The RSPA also is considering a requirement to retrofit existing main line valves or to install new remote controlled valves on liquid pipelines located in urban areas. However, this work is being delayed to eliminate requirements believed not to be cost effective. Additionally, because of RSPA's previous lack of progress on this issue, Congress recently enacted legislation that requires RSPA to complete a study within the next 3 years to define the need for better control of pipeline systems.

Improved Monitoring of Liquid Pipelines

Safety Board investigations of liquid pipeline accidents have resulted in pipeline operators improving their pipeline monitoring systems to better detect releases of products. This also has resulted in RSPA's initiation of a program to assess the adequacy of its pipeline monitoring requirements. The Texas Eastern Products Pipeline Company, as a result of the March 13, 1990, failure at North Blenheim, New York, now is monitoring each of its pump stations to alert its dispatchers of failures and other abnormal operations. The Buckeye Pipe Line Company, as a result of the March 30, 1990, failure at Freeport, Pennsylvania, has modified its monitoring system to provide additional alarms to alert its dispatchers to abnormal operating conditions. In March 1992, the Colonial Pipeline Company began operating its new pipeline monitoring system. This system can provide data updates at five second intervals through use of satellite communications and it can use a leak detection subsystem to approximate the location of major leaks or other abnormal operations. In its March 1991 report, "Emergency Flow Restricting Devices Study," the RSPA announced that it now is considering whether it should modify its present pipeline monitoring regulations to require leak detection capabilities. The Safety Board believes that a means to promptly detect and identify the locations of releases from pipelines is essential to safe pipeline operations; however, this work is being delayed in favor of action to eliminate requirements believed by RSPA not to be cost effective.

HAZARDOUS MATERIALS

Transportation of Hazardous Materials by Rail

On May 16, 1991, the Board adopted a safety study on the transportation of hazardous materials by rail. In support of the study, the Safety Board investigated 45 railroad accidents that occurred during a one year period, and reviewed reports of its past major accident investigations and special studies. The study identified the movement of more than 1.52 million carloads of hazardous materials in 1989. The Safety Board also found that, during the five-year period from 1985 through 1989, there were 2,121 railroad accidents involving hazardous materials, and more than 100,000 people were evacuated following railroad accidents in which hazardous materials were involved.

The study concluded that hazardous materials that are highly flammable or toxic, or that pose a threat to the environment, are frequently transported in tank cars that provide inadequate protection even though better protected tank cars are available. As a result, the Board urged the DOT to consider the environmental hazards posed when conducting its risk analysis on the release of hazardous materials from tank cars. The Safety Board also called for industry to develop a list of the more dangerous products now being shipped in DOT-111A tank cars and to voluntarily begin shipping these products in better protected cars while the DOT carries out its product risk assessment.

In at least 21 of the 45 cases investigated, the Safety Board found that local emergency response incident commanders did not have a hazardous materials emergency response plan to follow, and in 19 of the 45 cases, incident commanders and railroad personnel had not been in contact with each other to develop a plan of action in the event of a train accident involving hazardous materials. Based on these findings, the Safety Board called for various organizations, such as the National League of Cities and the International Fire Chiefs Association, to urge their members to develop and coordinate written emergency response plans and procedures for handling hazardous materials releases between emergency response organizations and railroads.

Cargo Tank Rollover Protection

During 1991, the Safety Board investigated seven highway accidents involving truck cargo tanks that overturned, resulting in damage to top fittings and the release of hazardous materials. The findings from these investigations were published on February 4, 1992, as part of the Safety Board's Special Investigation Report on Cargo Tank Overturn Protection. All of the cargo tanks were equipped with rollover protection devices to protect the top fittings. However, the Safety Board found that in three of the rollover accidents, structural failure of the rollover protection devices resulted in impact damage to the top fittings, and in four of the rollover accidents, the design and configuration of the rollover protection devices were not adequate to protect and shield the fittings from objects external to the tanks or from plowing into the ground.

The Safety Board concluded that the FHWA had not adequately exercised its enforcement responsibilities pertaining to cargo tank design and construction requirements, that the industry was not provided sufficient guidance on how to comply with the minimum safety requirements, and that the accident data bases were not adequate to identify important trends or potential problems related to the design and construction of cargo tanks.

As a result of the special investigation, the Safety Board issued 12 safety recommendations to the FHWA and the RSPA. The Safety Board recommended that cargo tank manufacturers be provided specific written guidance about factors and assumptions that must be considered when calculating the loads on rollover protection devices and acceptable means to shield and protect the top fittings. Further, the Board recommended that the FHWA and the RSPA take action to improve the performance of rollover protection devices by modeling and analyzing the forces that can act upon rollover protection devices during a rollover accident and to promulgate performance standards for rollover protection devices based on the engineering modeling and analysis. The Safety Board also recommended that improvements be made in the collection of information necessary to identify patterns of cargo tank equipment failure and that a compliance program be implemented to evaluate if newly-manufactured cargo tanks meet design and construction requirements.

On July 19, 1992, the FHWA responded to these safety recommendations and advised the Safety Board that it had hired a contractor to evaluate the designs of overturn protection devices used by specific manufacturers and was developing an enforcement program to systematically evaluate the design and construction of cargo tanks. The program would include hiring 2 full-time structural engineers. The FHWA further informed the Safety Board that it would explore the feasibility of improving the performance requirements for rollover protection devices on cargo tanks by modeling and analyzing the forces that act upon rollover protection devices during a rollover accident. The FHWA also would work with RSPA to implement the remaining recommendations if found, as a result of analysis, to be necessary.

The RSPA also responded to these safety recommendations by advising the Safety Board that it would help the FHWA to evaluate rollover protection device requirements for cargo tanks, including those that failed in accidents investigated. However, the RSPA declined to offer guidelines to the industry on how to comply with current requirements, suggesting that industry should develop the guidelines. The Safety Board advised the RSPA that it remains convinced that the RSPA should provide written guidelines for the industry on how to comply with the RSPA's performance standards, and that the acceptability and effectiveness of the guidance could be enhanced if the RSPA develops the guidance with the help of the industry.

SAFETY STUDIES

Safety studies are performed to stimulate improvements in the policies, programs, activities, methods, processes, or statutory authority of Federal or state agencies, or to advance technological improvements in a transportation system, subsystem, or component.

In selecting subjects for safety studies, the Safety Board identifies ongoing or potential safety problems or issues of national significance which have one or more of the following characteristics and which can be accommodated under current personnel and scheduling limitations:

1. Potential for reducing accident losses.
2. Potential for improving the safety effectiveness of other government agencies.
3. Potential for attaining implementation of previous Board recommendations.
4. Adequacy of program resources committed by other government agencies.
5. Timeliness with regard to transportation agency program planning and implementation.
6. Potential impact on regulatory or other safety programs.
7. Congressional and public interest.

Highlights of some of the current safety studies follow. Those which support our "Most Wanted" Safety Recommendation Program are denoted by an asterisk.

AVIATION

Flightcrew Involvement in Part 121 Air Carrier Accidents

One or more members of the flightcrew have been identified as causing or contributing to more than 190 accidents of Part 121 air carriers during the past 15 years. Until now, little has been done to examine, systematically and comprehensively, what the Board has said in its past investigations about the contributions to accidents by individual members of the flightcrew.

A detailed assessment is being conducted of 38 air carrier accidents involving large transport airplanes in which the Board cited deficiencies in flightcrew performance in a major accident investigation report. Flightcrew errors are being classified according to the type of error and each error is being evaluated according to crew-related factors, including measures of workload, fatigue, stress, experience, training, communications, crewmember at the controls (Captain or First Officer), and other factors related to human performance. The contexts in which the error(s) occurred are also being studied. The data is being collected from the Board's aviation accident and safety recommendation data bases, major accident reports and dockets.

The study will establish a better understanding of fundamental human performance factors in aviation accidents. The results of the study should be useful to researchers and other persons concerned with air carrier crew performance. Improved technologies for organization and analysis of factual information by air safety investigators should be another product of this report. The results also will be used to identify additional safety study topics.

RAILROAD

Railroad Work/Rest Cycles*

The changing nature of railroad operations has increased the relative number of train crewmembers in some locations who must work irregular and unpredictable shifts on an extended basis. Train crews who work assignments as fill-ins or extras in pool crews are particularly vulnerable to unpredictable and unplanned shift work schedules. Employees filling these assignments can be called any time of the day or night on two-hour notification after having been off duty eight or more hours. The irregular nature of such schedules can affect the employee's level of alertness. Work/rest requirements in the railroad industry are regulated by the Hours of Service Act. Nonetheless, the Safety Board has investigated accidents in which operator fatigue contributed to the cause of the accident.

For this study, existing railroad accident investigations will be examined to identify the role of fatigue and to determine the effects of work/rest cycle scheduling practices on accident causation. In addition, detailed information regarding the work and non-work activities, as well as sleep behavior of train crewmembers, may be collected in the investigation of additional accidents. The role of railroad management and unions in considering the effects of unpredictable work schedules also will be documented. Work/rest cycle information to support the study will be obtained on any investigations undertaken during the study data collection period.

HIGHWAY

Heavy Truck Stopping Performance

In March 1992, the Safety Board completed a study to determine the effectiveness of service brakes on heavy trucks, particularly five-axle combinations. Over 1,500 brake inspections were conducted across the country, on interstate and non-interstate roadways, to determine the overall efficiency and mechanical condition of heavy truck service brakes. Further, the Safety Board investigated 18 highway accidents involving heavy trucks and buses with braking problems that were factors in the accident. The final report on this study addressed the role of truck brake performance in the accident causation process, from both a stability and a stopping distance standpoint. These issues are tied to the general condition of truck brakes as noted from the truck brake inspection data base.

A second study now is underway that will address the manner in which truck and bus brake inspections are being conducted by state and Federal agencies. Substantial discrepancies were observed between state and NTSB reported out-of-service rates. The Safety Board will examine the Motor Carrier Safety Assistance Program (MCSAP), including state funding, inspector training, adequacy of inspection facilities, and quality control of reported data. Approximately 800 additional heavy truck inspections and three state program reviews will be conducted to provide data for this study. The data collection phase of the second study is expected to be completed in the Spring of 1993.

Fatigue in Commercial Vehicle Accidents*

The recent Safety Board study of "Fatigue, Alcohol, Other Drugs, and Medical Factors in Fatal-to-the-Driver Heavy Truck Crashes" found that fatigue was the most frequently cited probable cause of these accidents (31 percent) followed by alcohol and other drug impairment (29 percent). Fatigue also has been identified as a cause or contributing factor in a substantial number of major accident investigations in all modes conducted by the Board.

Fatigue as a factor in commercial transportation involves physiological issues, such as circadian desynchronosis and the effects of sleep loss, as well as operational and human performance issues related to sleep deprivation and sustained operation of work tasks. This study will analyze accidents in a selected group of states involving commercial vehicles having a gross vehicle weight rating of more than 26,000 pounds. A sufficiently large sample of these accidents will be investigated to permit statistical analysis of the factors that lead to fatigue, such as sleep deprivation, work scheduling factors and nutrition.

The potential economic impact of recommendations related to fatigue in the transportation industry could make this study highly visible and sensitive. There is growing awareness among the safety community that operator fatigue is a significant highway safety issue.

MARINE

Recreational Boating Safety

Recreational boating continues to result in approximately 900 fatalities per year, second only to highway fatalities. Intoxicated boat operators and operators unfamiliar with the "rules of the road" are major reasons for boating accidents. According to discussions with several state boating law administrators, states are concerned that no effective mechanism exists to ensure that vessel operators have an adequate minimum knowledge level prior to vessel operation. Similarly, citation and conviction for hazardous vessel operation may not have much effect since recreational boat operators are not required to be licensed, and no system exists to identify and address operators who are repeatedly convicted of hazardous vessel operation.

Boating accident investigations reported by states and the U.S. Coast Guard are being studied for information such as operator training, accident causal factors, and operator violations. State recreational boating authorities are being surveyed and current state legislative initiatives related to operator education and training will be documented. Variations in state accident reporting procedures also are being reviewed.

The results of this study should help to improve operator knowledge and assist marine enforcement officers in controlling hazardous vessel operation. The Safety Board has played a major role in the passage of new and/or improved boating-while-intoxicated laws in 40 states and two territories. This study is a natural follow-on to those efforts. This study also should be of value to the states planning to introduce vessel operator education requirements.

SAFETY ACCOMPLISHMENTS

The goal of the Safety Board is to achieve the greatest possible safety benefits from its accident investigations, safety studies, and other safety promotion activities. As a result of these activities, the Board issued 369 safety recommendations during fiscal year 1991. Since 1982, 80 percent of the Safety Board's recommendations have been accepted by the respective recipients. The following are examples of some of the Board's recent safety accomplishments, resulting either from safety recommendations or other safety promotion efforts. Those accomplishments resulting from or related to our "Most Wanted" Safety Recommendation Program are denoted by an asterisk.

AVIATION

DC-9 Tailcone Training Device

The Safety Board's investigation of the December 3, 1990, runway collision of Northwest Airlines flight 299, a Boeing 727, and Northwest flight 1482, a McDonnell Douglas DC-9, at Detroit Metropolitan/Wayne County Airport, in Romulus, Michigan, found that the device used to train flight attendants on the operation of the jettisonable tailcone was inadequate. The training device, which had been approved by the FAA, was inadequate because: 1) the mounted release handle was not installed in clips that realistically would have replicated the forces required to pull the handle free of the training device; 2) the environment did not represent a fully enclosed tailcone with low levels of ambient illumination; and 3) a door or hatch was not used to gain entry to the handle simulator as would be the case in an actual situation.

The FAA Air Carrier Operations Bulletin 8-76-46, Crewmember Emergency Training, Use of Mockups, states, "For those exits where it is impractical for each individual to operate the exit or device, such as the DC-9 tailcone, a group demonstration will suffice provided it is supported by a realistic, detailed visual/pictorial presentation." The Safety Board believes that this guidance should be eliminated. Flight attendants should have hands-on experience with any exits that they may be required to operate during an emergency evacuation.

The Safety Board recommended that the FAA issue an Advisory Circular addressing acceptable methods for the design, construction, operation, and maintenance of mockups used for exit training during crewmember emergency training, and provide guidance to FAA inspectors to ensure that emergency equipment training devices accurately replicate the potential operational environment.

The FAA has informed the Safety Board that it will issue an Advisory Circular with guidance on emergency equipment training devices.

MD-88 Tailcone Evacuation Slide Deployment

Following the May 5, 1991, ground collision of a Delta Airlines McDonnell-Douglas MD-88 and a baggage van at the Hartsfield International Airport, Atlanta, Georgia, a flight attendant reported that the tailcone did not jettison as expected, and that she had to manually deploy the tailcone evacuation slide during the emergency evacuation.

The Safety Board's investigation found that the tailcone failed to swing to the left and clear the slide's inflation path. The MD-88 Maintenance Manual did not address the mechanism used to deploy the tailcone to the left. As a result of this investigation, McDonnell-Douglas revised the maintenance manual to incorporate servicing this mechanism. The investigation also found that the tailcone slide cover attachment lanyard could be improperly fastened. As a result of this finding, McDonnell-Douglas requested the manufacturer of the slide cover to design a new fastener, which should be certified by the FAA in early 1993.

In-flight Operation of Propeller Reversing Controls

The Safety Board has investigated several accidents involving turboprop airplanes where the improper use of propeller reversing controls either caused or contributed to the cause of fatal accidents. As a result of these investigations, the Board recommended that airplanes with in-flight propeller blade reversing capability be designed to prevent the use of reverse in flight if safe operation could not be demonstrated. In response to the recommendations, the FAA recently issued an airworthiness directive for the CASA 212 series airplanes to require the installation of a propeller control system that prevents the operation of propeller reversing while the airplane is airborne. The Safety Board is continuing to monitor incident/accident reports that may involve the improper or inadvertent use of propeller reverse.

Fokker F.28 Mark 4000 Engine Anti-Ice Switches

On March 22, 1992, a Fokker F.28 Mark 4000, operating as USAir flight 405, crashed during takeoff from runway 13 at LaGuardia Airport, Flushing, New York. Weather conditions at the time of the accident included falling snow. The airplane returned to the ground after takeoff and came to rest partially inverted in Flushing Bay. Cockpit switches for the engine anti-ice valves had a detent that required the pilot to pull the toggle from the center "OFF" position before moving it to "AUTO" or "ON". Inspection of a new switch found that only light finger pressure was required to move the toggle to "OFF". Pilots that participated in the investigation reported that the switches are easy to bump in turbulence when reaching for the windshield wiper control knob. The switches were a Piedmont Airlines modification that replaced the original three position non-locking toggle switches that could be snapped to any position. The Illustrated Parts Catalog was found to be incorrect in that it called for the original switch, rather than the center-locking switch. USAir has initiated an Engineering Order (EO) to change the switch design to one that locks in each of three selectable positions. The EO also will correct the USAir technical publications to prevent installation of incorrect switch styles.

Airbus A310 Engine Thrust Reverser System

On December 7, 1991, Delta flight 76, an Airbus A310 equipped with Pratt and Whitney PW4152 engines, was climbing through approximately 5,000 feet when cockpit indications showed that the right engine thrust reverser had unlocked, followed by a sudden yaw to the right. The pilots were able to counteract the yaw and shut down the engine without further incident before returning to land at Cincinnati. The investigation revealed that a rotary variable differential transformer (RVDT) on the right side of the right engine had been overheated. The RVDT should sense the position of the outboard thrust reverser for the full authority digital electronic control (FADEC) and cockpit indication systems. Safety Board investigators found that an incorrect part had been installed in the pneumatic circuit for the ice/rain protection system. As a result, high temperature compressor bleed air discharged from the ice/rain protection circuit approximately three inches from the RVDT. It was also found that the same condition could occur if the correct part was improperly installed in the system. In response to the Board's findings, Delta Airlines implemented corrective action, while Pratt and Whitney has alerted operators and is considering similar action.

Nondestructive Testing Research

The FAA has initiated or is continuing several programs designed to improve the reliability of inspection processes. Under the aging aircraft program, a task force was formed to assess emerging nondestructive inspection procedures, equipment, techniques, and training facilities. The FAA's Titanium Rotating Components Review Team Report (issued May 1991) recommended an aggressive short-term research and development program to establish industry-wide probability of detection curves for fluorescent penetrant, ultrasonic, eddy current, and manufacturing and in-service inspection methods and processes. The report also recommends establishing personnel qualification standards for inspectors. These programs should improve the probability of detection of defects in existing and newly-manufactured components and help prevent accidents caused by component failure. The FAA programs have been the result of the Safety Board's investigation and recommendations in regard to the Aloha Airlines accident (April 28, 1988) and the Sioux City accident (July 19, 1989). Specifically, in a recommendation issued as a result of the Sioux City accident, the Board urged the FAA to intensify its research regarding nondestructive inspection to identify emerging technologies that can serve to simplify, automate, or otherwise improve the reliability of the inspection process. The Sioux City accident sequence started with the separation of the first stage fan disk from the number two (tail-mounted) engine on the DC-10 airplane. The Separation of the disk was a result of fatigue cracking that initiated from a metallurgical defect that was present during original manufacturing of the part. The metallurgical defect was not detected by inspections during the manufacturing process, and the fatigue crack was not detected by in-service inspections.

Engine Control Cables

In February 1991, the FAA issued an airworthiness directive (AD) requiring that certain Boeing 737 airplanes receive a onetime inspection of the engine control cable systems. If noncorrosion resistant steel cables were found, the AD required replacement with corrosion resistant steel cables. This action greatly reduces the possibility that the engine control cables on Boeing 737 airplanes will separate due to corrosion damage.

The FAA action resulted from the Safety Board's investigation into the Aloha Airlines Boeing 737 accident in which 18 feet of the upper fuselage structure was torn from the airplane. During the explosive decompression, deflection of the cabin floor caused stress to be applied to the engine control cables, resulting in separation of the corrosion-weakened left engine cables. The left engine power reduced to flight idle during the cable separation, and as a result of the broken cables, the flight crew could not increase engine thrust. The right engine control cables also had been weakened by corrosion; however, they remained intact and the right engine provided sufficient thrust to allow the airplane to be flown to Maui and to land successfully.

Garrett TFE731 Fan Disc Failure

As a result of a Safety Board investigation, the FAA issued a priority letter airworthiness directive requiring initial and recurrent inspections for cracks in the blade slots of all Garrett TFE 731 fan discs. The service time for the initial inspection and the period of recurrent inspections was shortened, which should significantly reduce the possibility of additional fan disc failures.

The recommendation was prompted by an investigation of a nonfatal accident involving an uncontained in-flight separation of a fan disc on a Dassault Falcon business jet. Subsequent to the disc failure, the airplane lost the entire fan section from the number 1 engine, but landed safely.

Also resulting from the investigation, Garrett Engine Division, Allied-Signal Aerospace Inc., issued an alert service bulletin calling for the removal of all fan discs from the same material lot as the failed disc and for guidance for nondestructive inspections of the fan discs.

Currently, there are about 5,100 TFE 731 engines in operation on a wide variety of business jets. Uncontained disc failures could have endangered the aircraft's structural integrity. The Safety Board's investigation of this accident and the FAA's prompt action on our recommendation should significantly increase the safety of this type of aircraft.

In-flight Propeller Blade Separation

On March 27, 1991, the Safety Board issued a safety recommendation to the FAA regarding the potential danger of combining a Sensenich-manufactured propeller, basic model M-74DM, with a number of Lycoming engines when the diameter of the propeller had been reduced below the value specified by the Type Certification Data Sheet. The Safety Board noted that a catastrophic failure of the propeller on a homebuilt Thorp T-18 airplane was induced by a resonant vibration that occurred when the diameter of the propeller was reduced four inches below the minimum specified value.

As a result of the Board's recommendation, the FAA published a general Aviation Airworthiness Alert, which addressed and emphasized the importance of ensuring that the propellers are installed in compliance with the Data Sheet requirements. The FAA sent the information contained in the alert to all of its flight standards divisions and manufacturing inspection district offices. The notice also requested that when evaluating the aircraft for experimental certification, FAA representatives should ensure that any modifications to type certificated propellers or other components have been coordinated with the manufacturer.

Underwater Acoustic Beacon Failures

On November 4, 1988, an Aerospatiale AS-355F-1 helicopter crashed into the Gulf of Mexico during an on-demand air taxi flight. The aircraft was destroyed and the pilot and three of the five passengers were killed. The aircraft, which sank in about 360 feet of water, was equipped with a Dukane Corporation underwater acoustic beacon mounted to the aircraft's structure. A search was conducted for the beacon using appropriate underwater search equipment. The wreckage was eventually located using underwater divers working with the aircraft's last reported position. The beacon's battery was found in a discharged state, even though the battery had been replaced recently by the operator. In addition, manufacturing defects were found in the beacon during the post-accident testing phase.

During the course of the investigation, it was determined that this type of beacon also was installed on the vast majority of DFDRs, FDRs, and CVRs installed in aircraft worldwide. As a result of these findings, on July 12, 1991, the Safety Board issued two recommendations requesting that the FAA require air carrier maintenance programs be changed to include the manufacturer's recommended procedures and tests. The Board also recommended to the manufacturer that it inform all branches of the U.S. military service and all foreign airworthiness authorities of the importance of these recommendations and the manufacturer's published maintenance and testing procedures. Satisfactory action has been taken in response to these recommendations. One recommendation to the FAA and the recommendation to the manufacturer have been closed based on acceptable action being taken. The Safety Board awaits the FAA's response on the second recommendation.

Pratt and Whitney Engines

Following its investigation of a rejected takeoff incident, which resulted in the total destruction of a Boeing 727 airplane, the Safety Board issued urgent safety recommendations to the FAA calling for immediate action to assure the continuing airworthiness of certain Pratt and Whitney engines, and to reduce the potential for engine-related aircraft accidents.

The incident involved the May 3, 1991, uncontained failure of a Pratt and Whitney JT8D-7B engine ninth stage high pressure compressor (HPC) disk in a Boeing 727 airplane. The liberated disk severed fuel and oil lines after exiting the engine and then penetrated the fuselage of the airplane. The Safety Board investigation revealed that the disk failure was initiated by corrosion pits and that the failed disk and others on the airplane exhibited areas of heavy corrosion. The Safety Board is concerned that corporate operators and special use/package delivery airplanes may be susceptible to HPC corrosion because of their relatively low usage and correspondingly long time on the airplane between compressor inspections. The Board recommended that the FAA conduct a directed safety investigation with Pratt and Whitney to determine the magnitude and cause of the corrosion problem and to require timely corrective measures to eliminate this hazard. As a result of the Safety Board's efforts, Pratt and Whitney issued an Alert Service Bulletin (ASB) requiring borescope inspections of the eighth, ninth, and tenth stage HPC disks for corrosion and the establishment of corrective measures to remove from service any corroded disks. Pratt and Whitney has stated that all of the affected operators are currently complying with the service bulletin. As a result of these inspections, several operators have discovered corrosion on a number of HPC disks in suspected engines within their fleets.

The FAA has yet to issue an airworthiness directive (AD) to mandate the requirements of the Pratt Whitney ASB, however, one is in process and is expected to go before the AD Review Board in the near future.

Emergency Evacuation Procedures for Flight Attendants

During the investigation of the February 2, 1991, ground collision involving a USAir, B-737, and a Skywest Metroliner, at the Los Angeles International Airport it was determined that the flight attendant who died in the smoke filled cabin might have survived if she had utilized an exit closer to the assigned evacuation station which was inoperative due to impact damage.

A review of USAir's flight attendant emergency evacuation procedures called for flight attendants whose primary evacuation station was inoperable or blocked to respond to the overwing window exits. After consultations with the USAir training staff, the practice was rescinded and flight attendants were instructed to use the nearest available egress point should they find their primary exit inoperative or blocked.

Use of Automotive Fuels in Aircraft

On January 2, 1991, in response to concerns expressed by the Safety Board and several aviation industry interest groups about the misuse of auto fuels in reciprocating aircraft engines, as evidenced in hundreds of accident investigations, the FAA published an Advisory Circular (AC). After receiving comments regarding a draft AC, the FAA modified the Circular to include an expanded section dealing with auto fuel specifications and conformities to the American Society for Testing and Materials (ASTM) D-910; warnings concerning additions of various forms of alcohol and the alterations of fuel specifications when adding alcohol; and a requirement for a flight manual supplement describing in detail the proper operating procedures, limitations, and placarding to be used by operators, owners, and pilots. The Safety Board is currently examining the auto fuel related accidents to evaluate whether further action may be necessary to help prevent accidents caused by improper use of automotive fuels.

Standardization of Flight Recorder Documentation

In March 1991 the Safety Board recommended that the FAA issue permanent policy and guidelines for the continued airworthiness of digital flight data recorders (DFDR). This recommendation resulted from a number of accident investigations in which the operator was unable to provide the documentation needed by the Safety Board to decipher the information recorded by the DFDR. Such detailed documentation also is needed by the operator to perform required periodic maintenance checks of the DFDR system. Further, because the parameter documentation for different DFDR systems is not presented in a standard format, the exchange of DFDR documentation between government and industry is difficult. To lessen this problem, the Safety Board developed a documentation standard that is currently being adopted by the international aviation community as an attachment to the Aeronautical Radio Inc. (ARINC) DFDR standards. The FAA has acknowledged the need for additional policy and guidance material in this area and has requested the Safety Board's participation in its development. Efforts in this area are ongoing. The FAA is now waiting for ARINC to finalize the draft attachment.

Air Traffic Control Procedures

On January 18, 1990, an Eastern Airlines Boeing 727 collided with a Beechcraft King Air A100 on the runway at the William B. Hartsfield International Airport, Atlanta, Georgia. The King Air was preparing to turn off the runway after having landed ahead of the Eastern turbojet. Both airplanes were in radio communication with the air traffic controller in the tower at the time of the accident. The Safety Board determined that the probable cause of the accident was a lack of ATC procedures which would take into consideration human performance shortcomings and contributing to the accident was that failure of several controllers to properly perform their duties regarding both airplanes.

The Safety Board issued five safety recommendations to the FAA to correct deficiencies found in FAA's Air Traffic Control procedures that appeared to have caused or contributed to the accident. The FAA responded by taking action to correct these inadequacies.

On December 3, 1990, two Northwest Airlines turbojets collided at the Detroit Metropolitan/Wayne County Airport, Detroit, Michigan, during instrument meteorological conditions. One airplane was on its takeoff roll on runway 3C at the time of the collision and the other airplane had taxied onto the runway just prior to the accident. Although the Safety Board determined the cause of the accident was the result of shortcomings in flightcrew performance, it also determined that training deficiencies contributed to the accident.

The Safety Board issued three safety recommendations which urged the FAA to emphasize the use of progressive taxi instructions during low visibility operations and the need for local controllers to positively determine airplane departures when visual observation was not possible. The FAA also was urged to implement procedures for the redundancy of critical controller tasks and to install hardware systems to supplement such redundancy.

The FAA agreed with these safety recommendations and has initiated appropriate action.

Helicopter Tail Rotor Driveshaft Hanger Bearing Failure

On August 26, 1991, a Bell Helicopter Textron Model 412 sustained a catastrophic failure of the number one tail rotor driveshaft hanger bearing while on final approach to an offshore oil platform in the Gulf of Mexico. Directional control of the helicopter was lost and it impacted the water. One fatality and three serious injuries occurred. Eleven passengers and a crew of two were on board the flight. As a result of the Safety Board's investigation, the helicopter manufacturer issued an immediate Operations Safety Notice followed by an Alert Service Bulletin. The FAA followed up with an Emergency Airworthiness Directive. An additional airworthiness directive was issued following completion of the investigation. A possible manufacturing discrepancy relating to bearing contamination was identified by a special evaluation group directed by the Safety Board to determine if the manufacturer's quality control procedures were adequate. These actions affect Bell Helicopters Models 204B, 205A, 205A-1, 212 and 402 on a worldwide basis.

Foreign Accident Investigations

Because of the ever increasing number of U.S.-Manufactured and U.S.-registered airplanes operating overseas, and because of the Safety Board's status as the sole U.S. accredited representative at foreign accident investigations under the provisions of the International Civil Aviation Organization (ICAO), U.S. manufacturers and operators rely heavily upon the Board to facilitate their involvement in the investigation of foreign incidents and accidents. A major airline accident involving fatalities anywhere in the world causes significant concerns on the part of the traveling public; both in the U.S. and overseas. The Board's involvement in the investigation of major international accidents assists in reducing these concerns and provides a critical contribution both to U.S.-foreign relations and to strengthening the Nation's balance of trade posture through aviation exports. Some examples of the Safety Board's involvement in these investigations over the past year follows.

Recently, the Safety Board sent an accredited representative to lead the U.S. team in assisting the accident investigators of the People's Republic of China in the investigation of a China Airways Boeing 737-300 that crashed on November 24, 1992, on approach to Guilin, China. This was the first U.S. team to go to China on an accident investigation. The cooperation with the government of China resulted from recent meetings and discussions between NTSB staff and their Chinese counterparts. All 141 persons on board the airplane were fatally injured. The initial investigation found that the airplane impacted the face of a nearly vertical mountain. Very little of the wreckage was recovered. The flight data recorder was found and an initial readout of the data was accomplished in Beijing. Unfortunately, the last three minutes of the tape were severely damaged by impact. The U.S. accredited representative has worked closely with the Chinese Investigator-in-Charge to have the tape brought to the Safety Board's laboratory to determine if portions of data from damaged sections could be recovered. The CVR has not been recovered and a reward was offered by the Chinese government in an effort to locate the recorder. The initial FDR readout found no evidence of a problem that would have caused loss of control of the airplane. Impact marks on the cliff indicate that the airplane was in a 90-degree right bank and pitched down at impact.

On October 5, 1992, an investigative team was sent to The Netherlands to assist in the investigation of El Al flight 1862, a Boeing 747-200F, that crashed into an apartment complex shortly after takeoff at Amsterdam. All three crewmembers, one passenger, and 55 persons on the ground were killed in the crash. The FDR was sent to the Safety Board's laboratory for examination. The FDR data and the examination of the wreckage indicated that the No. 3 engine separated from the airplane and impacted the No. 4 engine. The No. 4 engine subsequently separated from the airplane. The investigation determined that the No. 3 engine separated from the airplane because of a failure of midspar pylon attachment fuse pins that secure the engine to the wing. The circumstances of the accident at Amsterdam were very similar to those of China Airline flight CI-358, a Boeing 747-200F, that crashed shortly after takeoff near Taipei, Taiwan, on December 29, 1991. As a result of these two accidents, the Safety Board recommended that the FAA require repetitive inspection of the fuse pins; inspection of wing-to-pylon misalignment before each flight; validation of the wing-to-pylon loads through flight test data; and installation of newly designed fuse pins.

On August 3, 1992, while landing at Charles DeGaulle Airport, Paris, France, the center body landing gear on a Varig Airlines' McDonnell-Douglas MD-11 rotated rearward to the extent that the strut and tires impacted the fuselage. Inspection of the airplane indicated substantial damage to the lower fuselage, however, the airplane was able to taxi to the gate and the passengers disembarked normally. This was reported to be the second such failure of a Varig MD-11 center body gear. The first such case occurred in March 1992 in Brazil. The Bureau of Enquetes-Accidents (BEA) requested that the landing gear components be sent to McDonnell-Douglas for examination under the Safety Board's supervision. The initial examination has indicated that the landing gear drag link failed in overload with no evidence of a preexisting problem. The data recovered from the FDR indicates that the landing was firm but well within the certification requirements. Center body landing gear components from the Varig MD-11 were installed on a McDonnell-Douglas engineering test airplane. During a landing, the center body gear failed in a similar manner. McDonnell-Douglas has since issued a service bulletin to all operators of the MD-11 that provides procedures that will greatly reduce the potential for similar incidents. An engineering design change currently is being developed that will provide a final solution to the problem.

On July 31, 1992, Thai Airways flight TG311, an Airbus A310-200 equipped with General Electric CF6-80C2 engines, crashed on a mountain north of Kathmandu, Nepal. All 113 people on board the airplane were fatally injured, including 13 American citizens. On September 28, 1992, a Pakistani Airlines Airbus A300-B4 crashed on approach to Kathmandu, Nepal. All 166 people on board the airplane were fatally injured, including 2 American citizens. As the country of manufacture, France sent an accredited representative to the accident scene. The engines of both airplanes were manufactured by General Electric, which sent representatives to assist in both investigations. The Safety Board has continued to monitor both investigations through our counterparts in the French government and at General Electric. These two accidents represent many such cases where Safety Board investigators do not travel to the accident site but a U.S. accredited representative is assigned to monitor the investigation. If a situation is found that could raise concerns as to the safety of airplanes operating in the U.S. or U.S. airlines operating overseas, the Safety Board would issue recommendations to address these concerns.

On June 6, 1992, a Boeing 737-200, operated by COPA Air Lines, suddenly crashed while descending from cruise flight near the jungle village of Tucuti, Panama. All 47 people on board the airplane were fatally injured. Prior to the accident, the airplane had been in cruise flight at an altitude of 25,000 feet when it suddenly rolled nearly inverted and entered a very steep dive. The Safety Board sent an investigative team to assist in the investigation. The flight data recorder (FDR) and the cockpit voice recorder (CVR) were sent to the Safety Board's laboratory for examination. Examination of the CVR determined that the unit was not working at the time of the accident. The on-scene investigation revealed that the airplane broke apart at a relatively low altitude due to aerodynamic overload. Examination of the engines, flight control surfaces, instrumentation, and weather data did not provide a cause as to how the airplane deviated from controlled flight. Many of the cockpit instruments and sensors that provide data signals to the instruments were sent back to the U.S. for examination under the direction of Safety Board experts. Additionally, the Safety Board sent a team to the United Kingdom to review the maintenance records of the airplane.

On March 31, 1992, a Nigerian-registered Boeing 707-321C, operated by Kabo Air Cargo had the Nos. 3 and 4 engines separate from the airplane as it was climbing through 31,000 feet over southern France. The pilots reported that there was no warning of any problem when the airplane suddenly "lurched." The flight crew was able to land the airplane at a French military base and the engines were later located in a mountainous region. On April 25, 1992, a Tampa Airlines Boeing 707-324C had the No. 3 engine separate from the airplane as it took off from Miami, Florida. The flightcrew was able to return to the airport safely. Investigation of the No. 3 engine pylon structure from the Tampa Airlines airplane disclosed a preexisting fatigue crack in a mounting bracket. Once the engines from the Kabo Air airplane were recovered, the Safety Board sent investigators to France to participate in their investigation and determined that a similar fatigue crack caused the No. 3 engine of the Kabo Air B-707 to separate from the airplane. The investigation determined that after the No. 3 engine separated, it struck the No. 4 engine, which resulted in the No. 4 engine separating from the airplane. During the approach to landing, a fire started in the right wing and an explosion occurred in the right outer wing fuel cell which severely reduced the structural integrity of the right wing. Based upon these investigations, the Safety Board issued recommendations to the FAA to require a reduction in the inspection time intervals for the Boeing 707 engine pylon mounts.

On February 10, 1992, the Safety Board sent investigators to Kafoutine, Senegal, to assist in the investigation of a U.S.-registered Convair 640 being operated by Air Senegal. The airplane crashed while attempting to land, resulting in the deaths of 30 of the 56 persons on board. One of the Safety Board's concerns in this accident was the continued maintenance and inspection of U.S.-registered airplanes being operated outside of the U.S. The investigation determined that the airplane was being commanded by a U.S. citizen who was past the mandatory retirement age of 60 years. The Safety Board is continuing to follow this investigation and is working with the FAA to determine the extent of similar operations throughout the world.

On January 20, 1992, an AirInter Airbus A-320 crashed while on approach to Strasbourg, France. Only 9 of the 96 people on board survived the accident. Although the airplane was not manufactured in the U.S., the Safety Board requested that it be allowed to participate in the investigation since there are two U.S. airlines currently operating this advanced technology airplane. The French government granted our request and a senior investigator was appointed as the accredited representative with a senior investigator from the FAA acting as his advisor. The investigation revealed possible pilot confusion on setting the navigation computers. The Airbus and the operating airlines, including U.S. airlines, have subsequently modified their training programs to make pilots more aware of the operating functions of the navigational system. The participation of the Safety Board in this investigation was vital in getting timely information to the FAA and the U.S. operators of the circumstances of the accident. The results of this investigation also will improve safety for other modern jet airplanes, including the MD-11 and the Boeing 777.

The Safety Board has been assisting the Japanese government in the investigation of a Northwest Boeing 747-400 that had to return for landing after a fire started in the No. 2 engine pylon. The investigation has determined that the fire was caused by a chafed electrical wire arcing to the fuel line of the No. 2 engine. The Safety Board assisted in the readout of the FDR and the CVR and in examining various components from the pylon structure.

The Safety Board continues to monitor several other ongoing foreign investigations for any potential safety issues affecting U.S. aviation safety. In addition to on-scene assistance, considerable efforts are expended by the Board in assisting foreign governments with flight recorder readouts, overseeing engine teardowns or examinations of other components, and gathering pertinent data to assist the Board's counterparts in other countries. Currently, the Safety Board is involved in over 40 foreign cases, many of which will lead to safety improvements.

Boeing 707 Engine Separations

Investigation of two accidents involving the complete separation of an engine and pylon from two Boeing 707 airplanes identified a significant deficiency in the inspection method and interval for a critical pylon component. A Safety Board recommendation to the FAA has resulted in increased inspections by an improved inspection method. Further action by the FAA requiring the ultimate replacement of the pylon components is anticipated in the near future.

In both accidents, one of which was foreign, the number 3 engine and pylon separated from the airplane. In the foreign investigation, the number 3 engine was determined to have struck the number 4 engine, causing its separation also. Both airplanes landed safely without injury to anyone. In each accident, fatigue fractures were discovered in the inboard midspar pylon attachment fitting. Boeing 707 midspar fittings already were required to have periodic inspections. In fact, this inspection was accomplished on one of the accident airplanes a relatively short time prior to the separation.

Although the Boeing 707 airplane has been phased out of passenger airline service in the U.S., it still receives significant use as a cargo airplane.

Improved Ground Proximity Warning Systems (GPWS)

On May 8, 1978, a Boeing 727 crashed into Escambia Bay during its approach to the Pensacola Regional Airport at Pensacola, Florida. On February 8, 1989, a Boeing 707 crashed on descent to Santa Maria Island in the Azores, Portugal. All 144 passengers and crew were killed, and the airplane was destroyed. On June 2, 1990, a Boeing 737 crashed during a nonprecision approach to Unalakleet, Alaska. In each case, these airplanes were equipped with an approved Ground Proximity Warning System that did not prevent the accident.

There are many Part 121 airplanes currently in service with GPWS systems that meet only the minimum standards, and do not have available improvements that could help to prevent such accidents.

Ground proximity warning systems supplement flight instrument data and warn the flightcrew when there is danger of unintended controlled flight into terrain (CFIT). In recent recommendations issued to the FAA, the Safety Board identified four improvements in the current regulations that would enhance the warnings provided to flightcrews by the GPWS in such flight situations. The enhancements would provide flightcrews with an aural message that identifies the reason for the warning; increase the advance warning times given by the GPWS; provide advisory callouts of altitude above terrain during nonprecision approaches; and provide a warning whenever the airplane descends too low while outside the vicinity of any of the world's suitable airports. The FAA has responded formally to most of these recommendations, however the Safety Board has asked that the FAA reconsider its negative position on two of these.

RAILROAD

Improvements in Passenger Train Safety

The Safety Board recently has investigated a number of accidents that have highlighted a variety of issues affecting passenger train safety. As a result of Safety Board recommendations, improvements have been made in several areas. Recently, Amtrak issued a contract for several new passenger cars. Both Amtrak and the contractor contacted the Safety Board requesting a listing of all safety recommendations issued concerning passenger car equipment so that the safety issues addressed in prior Safety Board investigations could be considered during the construction of the new equipment.

An accident involving an Amtrak train and a Conrail freight train on April 12, 1987 at Chase, Maryland, resulted in the identification by Safety Board investigators of problems in the procedures used in connecting and testing air brake systems on light engine movements. As a result of the Safety Board's concern, Amtrak took action to address the immediate problems and implemented a plan to provide for improved training and qualifying of mechanical department employees involved in air brake inspection and testing.

An accident involving a runaway train on the Montana Rail Link on February 2, 1989, at Helena, Montana, resulted in a revision to the "Rail Safety Enforcement and Review Act" (PL 102-365) requiring two-way end of train devices on all trains other than local, switchers, and work trains.

An accident on the Burlington Northern Railroad Company on April 23, 1990, at Batavia, Iowa, also resulted in a revision to PL 102-365 requiring the FRA to initiate a review of the track safety standards and, at a minimum, include an evaluation of the procedures associated with the installation and maintenance of continuous welded rail.

In addition, a number of safety proposals in areas such as: site improvement; inspection of double stack flat cars for floor brace fatigue failures; specific definition of a transit system signal previously undefined; use of derails to protect main tracks at identified industry sidings; and employee safety in work areas along the track have been addressed and corrected as a result of the Board's investigation of railroad accidents. The Safety Board continues to encourage the railroad and transit industry to strive for better training, inspection, and procedures as a means of reducing accidents and making railroading safer.

HIGHWAY

Fire Apparatus Safety

As a result of the Safety Board's special investigation of fire apparatus accidents, recommendations were issued to the Federal Emergency Management Agency (FEMA), the National Fire Protection Association and the International Association of Fire Chiefs to encourage fire departments to establish and enforce mandatory policies and to develop programs that promote the use of seatbelts in fire apparatus. On April 29, 1992, FEMA in conjunction with the National Highway Traffic Safety Administration broadcast a two-hour program entitled "Emergency Rescue: Yours or Theirs? Three Seconds That May Save Your Life" on the Emergency Education Network (EENET). The program was aimed at encouraging first responders, such as police, emergency medical technicians and firefighters, to wear the available belt restraints. A representative from the Safety Board presented several of the accidents that were included in the special investigation illustrating the benefits of wearing seatbelts and what can happen in accidents when firefighters are not restrained.

Highway Bridges

As a result of the Safety Board's recommendations following its investigation of the collapse of the Harrison Road temporary bridge over the Great Miami River, near Miamitown, Ohio, the United States Geological Survey, the Federal Highway Administration, and the American Association of State Highway and Transportation Officials (AASHTO) are working through the National Committee on Research (NCHRP) to develop bridge design methodologies and specification criteria for debris load forces acting on bridge substructures. In September 1991, a $300,000 NCHRP Project "Debris Loads on Highway Bridges" was initiated and research had begun. Additionally, in response to Safety Board recommendations following other bridge collapse investigations over the past five years, AASHTO has modified their bridge design and specification guidelines concerning bridge pile selection, and substructure maintenance and inspection.

Small School Bus Crash Performance*

In 1977, the Federal Motor Vehicle Safety Standards (FMVSS) for school buses became effective, mandating different performance standards for school buses compared with other buses. Because of the lack of data on the crash performance of school buses built to these standards, the Safety Board conducted a series of in-depth accident investigations resulting in the issuance of two reports.

The first report, published in 1987, examined the crash performance of large school buses built after the new standards became effective. The second report on school bus safety, issued in October 1989, focused on the performance of small school buses and vans used for school transportation. The Safety Board found that occupants of the small buses built to Federal school bus standards generally fared well in the accidents investigated. Seating position, more than restraint status, appeared to influence the severity of injuries, however injuries sustained were generally minor and were primarily to the face, head, or lower limbs. Passengers seated in the front rows of certain types of small school buses appeared to be at increased risk of head or facial injuries because of the absence of a restraining barrier. Lap-belted passengers, in particular, appeared to be at risk of injury from interaction with the restraining barriers.

The prompt action of school transportation associations in response to this study alerted school districts to the dangers of improper installation and improper use of restraints in small school buses. School bus manufacturers also have responded to the Safety Board's recommendations, regarding boarding door latches. Most offer retrofit kits and are willing to work with NHTSA in the development of boarding door latch performance requirements. NHTSA is collecting data on the performance of roof and emergency exits on small school buses and is considering research regarding frontal barrier and upper torso restraint in response to this study. The Safety Board supports the NHTSA's recently initiated rulemaking on emergency exits but is concerned that it did not address window retention standards for school buses.

MARINE

Passenger Vessel Safety*

On April 7, 1990, the Bahamian Passenger Ship SCANDINAVIAN STAR suffered a fire while it was underway in the North Sea. The fire resulted in the deaths of 158 people, 157 of whom were passengers. This tragic fire once again focused world-wide attention on the importance of fire protection on board passenger ships. (The Safety Board previously investigated a serious engineroom fire that occurred on the SCANDINAVIAN STAR on March 15, 1990, while the vessel was underway in the Gulf of Mexico with U.S. citizens on board). This vessel had undergone control verification examination by the U.S. Coast Guard in January 1990, and had continued to operate in the U.S. cruise market until March 1990. This disaster reinforced the Safety Board's recommendations, issued as a result of a safety study and several accident investigations, that current international standards for structural fire protection, sprinkler installations, low-level emergency lighting, smoke/fire detection systems, crew qualifications, emergency drills, and crew language requirements for passengers ships should be improved to ensure the safety of American passengers, particularly on board foreign flag vessels. The fire on board the SCANDINAVIAN STAR could have occurred while the vessel was operating in the U.S. cruise market, and a similar fire could break out on any one of several older vessels currently operating in the U.S. trade.

In 1991, the Safety Board investigated four accidents of fire aboard passenger vessels. They included the SOVEREIGN OF THE SEAS, the STARSHIP MAJESTIC, the BRITANIS, and the SONG OF AMERICA. Although there were no fatalities resulting from any of these fires, the potential for catastrophic loss of life prompted the Safety Board to place a high priority upon the investigation of passenger ship accidents and the careful monitoring of international safety standards regarding passenger vessel design and operation.

In 1992, the International Maritime Organization (IMO) met to finalize requirements for improved fire protection equipment for existing and new passenger vessels. New passenger vessels built after October 1, 1994, will be required to have sprinkler systems, smoke/fire detections and alarm systems, low-level emergency lighting systems, continuously manned central control stations, hose ports, improved fire hoses, automatic fire door closure systems, automatic closing fire dampers in ventilation ducts, and other fire safety improvements. In addition, older passenger vessels will be required to meet almost all of the new passenger vessel requirements according to an implementation schedule. Non-flammable materials will be required in vessel construction, and grandfather clauses in the fire safety regulations will be eliminated. In addition, the U.S. has proposed to the IMO that it focus on a number of human factors issues relating to passenger vessel safety.

Another passenger vessel safety issue is the stowage of lifejackets for passengers. Due to the Safety Board's persuasion, the Coast Guard has proposed to the IMO that international regulations be developed that will require lifejackets to be stowed on all passenger vessels at both the embarkation deck level and in passenger staterooms. In recent communications with passenger vessel operators, the Safety Board learned that many operators have voluntarily complied with this recommendation. Other operators will be deciding whether and/or how to respond to this recommendation through the umbrella of the International Council of Cruise Lines. There is a need for lifejackets to be stowed both in the staterooms and at the embarkation deck levels (or the place where most passengers are expected to congregate) to afford passengers the best opportunity to obtain lifejackets in an emergency. Without the dual location requirement, passengers have in many instances gone below decks into the area of danger to pick up their life jackets. This has resulted in unnecessary injuries and loss of life.

Fishing Vessel Safety*

In 1987, the Safety Board adopted a safety study that included a number of major safety recommendations to improve the safety of uninspected fishing vessels in areas such as training, requirements for safety equipment, minimum standards for vessel stability, improved safety oversight, the need for licensing of masters, and other safety concerns. Subsequent to the study, Congress passed the Commercial Fishing Industry Vessel Safety Act of 1988. Regulations issued by the U.S. Coast Guard in 1991 to implement the Act have satisfied many of the recommendations issued as a result of this safety study and prior accident investigations for uninspected commercial fishing vessels. Specifically the regulations address the need for mandatory immersion (exposure) suits, flooding detection alarms, emergency radios with independent power sources, emergency position indicating radio beacons, and other lifesaving equipment requirements. Additionally, instruction, drill and safety orientation requirements have been formalized for fishing vessel crewmembers. Currently, activities are underway by the Coast Guard and the fishing vessel industry trainers to develop an instruction curriculum for those persons responsible for conducting drills and giving safety instructions. Also, publications have been issued to provide informative guidance to the fishing vessel industry on the implementation of requirements such as navigation and inspection circulars and pamphlets.

The 1988 Fishing Vessel Act also required the Coast Guard to submit a licensing plan to Congress by the end of September 1990. The Coast Guard submitted its plan to Congress in January 1992, and the plan remains under review at this time.

Charting of Submerged Offshore Pipelines

The Safety Board has investigated several accidents involving vessels striking submerged pipelines carrying oil and gas products between offshore and shoreside facilities. In 1989, a U.S. fishing vessel struck and ruptured a 16-inch natural gas transmission pipeline in the Gulf of Mexico about five miles west of Sabine Pass, Texas. The escaping gas ignited and engulfed the entire vessel in flames. Of the 14 crewmembers, 11 died as a result of the accident. Because there are numerous oil and gas pipelines throughout the U.S. territorial waters that are not shown on navigation charts, the Safety Board recommended that the National Oceanographic and Atmospheric Administration (NOAA), the Minerals Management Service (MMS), the U.S. Army Corps of Engineers (USACE), the U.S. Coast Guard (USCG), various states, and representatives of the pipeline and fishing industries mark the submerged pipelines on navigation charts and implement charting criteria based on the potential hazard to marine operators. NOAA advised the Safety Board that it has issued a cartographic order for displaying submerged pipelines on nautical charts and that these pipelines will be on all charts as soon as possible. Also, several members of the marine community have shown a keen interest in the hazards involved in operating in areas of submerged pipelines and have instituted industry training programs for marine operators on the subject. The states, the MMS, the USCG and the USACE also have expressed their commitment to improving this area of marine operations.

Vessel Traffic Services

The EXXON VALDEZ accident focused national attention on the need for a viable Vessel Traffic Service (VTS) system in the prevention of marine accidents. However, even before the EXXON VALDEZ accident the Safety Board has been in the forefront of efforts to improve VTS in U.S. ports.

As a result of the EXXON VALDEZ accident, the Safety Board recommended that the Coast Guard increase the manning level at the Valdez, Alaska VTS to: (1) plot all participating vessels between the pilot station south of Bligh Reef and their berths in Port Valdez, and (2) provide additional staff to monitor and supervise vessel traffic watchstanders outside normal working hours.

The Coast Guard has complied with these recommendations and is upgrading its vessel plotting system to an electronic charting display that will automatically record the positions of vessels with a satellite-aided tracking system. This action exceeds the Board's recommendation that an additional radar site be located near Bligh Reef to provide better vessel tracking capabilities.

As a result of the Board's investigation of the ramming of the Maltese bulk carrier Mont Fort by the British tankship MAERSK NEPTUNE in New York Harbor in 1988, the Board recommended that the Coast Guard maintain VTS systems in New York, New Orleans, and Valdez. However, the Coast Guard closed the New York and New Orleans VTS systems and cut back the staffing at Valdez. As a result of the Board's June 1989 report of a tanker accident in the Mississippi River, the Board recommended that the Secretary of Transportation re-establish the VTS systems in New York and New Orleans. The Dire Emergency Supplemental Act of 1989 directed the Coast Guard to re-establish the New York VTS, and the VTS resumed operations in December 1990. Participation by certain vessels in the New York VTS was made mandatory when it was re-established.

The Oil Pollution Act of 1990, enacted as a result of the EXXON VALDEZ grounding, required the Secretary of Transportation to conduct a study to determine and prioritize the ports and channels that are in need of new, expanded, or improved VTS systems. The "Port Needs Study (Vessel Traffic Services Benefits)" was completed in August 1991. The study analyzes historical vessel casualties and their consequences for 23 study zones. The study will help the Coast Guard in developing a strategy for VTS in the United States.

This oil pollution legislation also amended the Ports and Waterways Safety Act making participation in VTS systems mandatory by certain vessels. Currently, eight VTS systems are operational: Berwick Bay, Morgan City, Louisiana; Houston/Galveston; New York; Prince William Sound; Puget Sound; Ohio River in Louisville, Kentucky; San Francisco; and St. Mary's River in Sault Sainte Marie, Michigan. The Coast Guard's FY93 budget included funds to reopen the New Orleans VTS and established VTS systems in Los Angeles/Long

Beach, California, and Port Arthur, Texas. The Coast Guard plans to conduct more detailed waterway assessments of specific needs in the ports of Boston, Corpus Christi, and Mobile.

The Coast Guard currently is drafting Federal regulations that will require mandatory participation in the VTS systems in the U.S. A final rule is expected to be published in April 1993. The Safety Board can be credited with being a driving force behind these developments.

PIPELINE

Improved Employee Training

In response to the Safety Board's increased focus on the role of employee training in accident prevention, some pipeline operators have responded with new, automated employee training systems. Recognizing the potential cost-saving and employee improvement benefits of this type of training program, the Williams Pipe Line Company (WPL) developed a computer-based interactive employee training program. Consequently, the WPL has successfully marketed the program for use by other pipeline operators. In addition, the Columbia Gas Company initiated a training and certification program for its gas control dispatchers. The program includes computer simulations that test each dispatcher's skill and knowledge. Columbia has made the dispatcher training and certification a permanent program because of the improvements that have been made in the skills of its dispatchers. Furthermore, the Kansas Power and Light Company implemented a Board safety recommendation by placing all employee training programs under the direction of a qualified person and established a system-wide employee training program based on employee work task analyses. The program also incorporates measurable performance standards and tests or evaluations to determine that each employee meets established training objectives.

The Gas Piping Technology Committee of the American Gas Association completed its work on a 1985 safety recommendation that called for it to coordinate with emergency response associations to develop emergency response guidance for pipeline operators. This guidance can now be used by pipeline operators in training its employees on when and under what circumstances they should call on the local emergency response agencies for assistance, what initial lifesaving actions can and should be taken, and what types of training should be provided to local response agencies as first responders.

Performance Criteria in Regulations Needed

The Safety Board addressed the failure of Federal pipeline safety regulations to provide adequate protection for public safety in its report on five accidents that occurred in 1988 and 1989 in Kansas and Missouri. In that report, the Board found that many regulations that the DOT considers to be performance-oriented requirements are no more than general statements of required actions with no criteria established to measure the adequacy of the actions taken by pipeline operators. The Board found that such regulations make it difficult for pipeline operators to understand what actions are expected of them, and to determine when they have complied with the requirement. These regulations also are susceptible to inconsistent compliance evaluations by state and Federal inspectors and make enforcement of the regulations difficult, if not impossible. Consequently, the Board recommended that the DOT evaluate and amend its pipeline safety requirements to provide regulations that contain both readily understandable safety objectives and specific criteria against which the performance of pipeline operators can be measured uniformly.

This problem was highlighted again during the Board's investigation of the March 30, 1990, petroleum products release from a break in a 10-inch pipeline near Freeport, Pennsylvania. The damaged section of pipe was not located for seven hours. Petroleum products released from the break in the pipeline entered both the Allegheny and Ohio Rivers, disrupting the water supply in many communities for days.

Federal regulations require that pipelines not designed to be fail-safe, and which are located in areas that would require immediate response by the operator to prevent hazards to the public, be monitored from an attended location to detect abnormal operating conditions. As is the case with many other Federal pipeline safety regulations, this requirement does not establish any monitoring system criteria regarding the reliability or the capability to identify the abnormal conditions, or their locations along the pipeline. Consequently, it appears that the seven hours needed to identify the cause of this large drop in pipeline pressure near Freeport, Pennsylvania, did not violate any Federal requirements.

On September 28, 1990, the DOT advised that in cooperation with the states, it will undertake a comprehensive review of the gas pipeline safety regulations to make changes needed to clarify the language, make the regulations enforceable, and correct inconsistencies. This effort is ongoing. On April 7, 1992, the DOT advised that it requested the states to review 49 CFR Part 192 to identify the 20 most significant regulations that have proven to be unenforceable due to their lack of clarity. Based on the results of that review, the DOT plans to issue appropriate regulatory changes in 1993.

HAZARDOUS MATERIALS

Quality Control for DOT Cylinders

On March 23, 1990, the Safety Board recommended that a major manufacturer of low pressure cylinders implement a quality control program for conducting federally-mandated tests and inspections on newly-manufactured cylinders and for rejecting cylinders failing to meet minimum regulatory requirements. The recommendation was issued as the result of the Safety Board's investigation of the November 1988, accident, during which a tractor-semitrailer loaded with 32 cylinders of a poisonous and toxic-by-inhalation mixture overturned in Collier County, Florida, causing the puncture of one cylinder and the release of product. In response to the recommendation, the manufacturer implemented computerized programs that prepare inspection reports, compare test results with minimum requirements, and can immediately identify defective cylinders. The manufacturer also has implemented procedures for auditing and approving independent laboratories that perform required tests on cylinder specimens.

Tank Car Safety

An urgent safety recommendation was issued to the FRA following the Safety Board's initial on-scene investigation of the catastrophic failure of a pressure tank car filled with 32,000 gallons of liquid propane in Dragon, Mississippi, on January 18, 1992. As the train began moving from a side track to a main track, the end of the tank car separated circumferentially, resulting in the derailment of the car and two other tank cars that also were filled with propane. A white vapor cloud filled the area and ignited into a fireball.

The tank car was of a dual diameter design, manufactured in 1965. The tank had a larger diameter at its midsection than at its end sections, and angled transition sections joined the larger and smaller tank sections. Examination of the circumferential break disclosed a large preexisting crack that was about 21 inches long and extended through about 95 percent of the tank wall thickness before separation. Five additional tank cars of similar design were examined, and three of the five tank cars had cracks ranging from two to 30 inches.

The Safety Board found that an estimated 6,000 to 7,000 dual diameter tank cars were in the rail tank car fleet and that these tank cars were used to transport such volatile materials as liquified petroleum gases, anhydrous ammonia, and vinyl chloride. Because of the potential catastrophic effects from the type of failure experienced in Dragon, Mississippi, the Safety Board recommended random testing of the fleet, for evidence of cracks and other serious defects in the circumferential welds, to more accurately determine how extensive the problem is, and to assess whether inspections should be required for all dual diameter tank cars. The FRA agreed with the urgent recommendation and issued an emergency order, effective April 4, 1992, requiring dual diameter tank car owners to immediately implement a sampling inspection program. In addition, the Association of American Railroads halted the movement of dual diameter tank cars pending the implementation of the inspection program. By November 1992, the sampling inspection program had been completed, and 40 tank cars were found to have cracks. As a result of these findings, the Safety Board is conducting a special investigation on periodic inspection and testing requirements for all tank cars used to transport hazardous materials.

Emergency Response Communication and Coordination

As a result of several accident investigations in recent years, the Safety Board has issued a number of safety recommendations to railroads, carriers, shippers, and emergency response agencies regarding communication and coordination in hazardous materials accidents and incidents.

Following the derailment of nine tank cars of butane in Akron, Ohio, on February 26, 1989, emergency response personnel had difficulties identifying the hazardous materials on the train. The Safety Board determined in its investigation that train crew personnel did not immediately provide emergency response personnel with shipping papers and vital information about the hazardous materials involved in the derailment. The Safety Board also determined that the documents on the train did not accurately reflect the position in the train of the cars containing the hazardous materials. In response to the Board's recommendations, the rail carrier involved, CSX Transportation, implemented a training program for operating crews and supervisors concerning their responsibilities to assist emergency responders immediately following a hazardous materials incident or accident. CSX Transportation also established procedures to work more closely with emergency response agencies during wreckage clearing operations and to require train crews to maintain up-to-date listings showing the position of hazardous materials cars in their trains.

As a result of the derailment of a freight train in Freeland, Michigan, on July 22, 1989, a tank car containing a chlorosilane mixture was punctured, causing the cargo to ignite. Because the chlorosilane manufacturer's material safety data sheet had conflicting information and did not provide effective firefighting procedures, emergency responders attempted various techniques over a five-day period before they were able to extinguish the fire. In response to the Safety Board's recommendation, the manufacturer modified and corrected the material safety data sheet.

The Safety Board found in its investigation of the release and ignition of butadiene from a tank car in New Orleans, Louisiana, on September 9, 1987, that emergency responders were unable to obtain product-specific information in a prompt and timely manner. In response to the Safety Board's recommendation, the shipper, Mitsui and Company, now includes an emergency 24-hour telephone number on its shipping papers through which detailed information of the hazardous characteristics of the material can be obtained.

Further, as a result of its investigation of accidents involving molten sulfur, the Safety Board had found that emergency response personnel had experienced problems identifying the cargo involved because molten sulfur was not regulated as a hazardous material and no placards were required on vehicles. Therefore, in 1985, the Safety Board recommended that molten sulfur and other molten materials be identified as hazardous materials. In March 1992, the RSPA advised the Safety Board that a final rule had been issued to accomplish the objective of the safety recommendation. Vehicles transporting molten sulfur and other molten materials are now identified with placards for emergency response personnel and information about these materials has been added to the U.S. Department of Transportation's Emergency Response Guidebook.

Cargo Tank Fittings

On February 13, 1991, a tank truck loaded with gasoline overturned in a residential area of Carmichael, California, and the resulting fire destroyed four homes. The investigation included a review of the performance of the manway closures on the cargo tank and the minimum safety requirements applicable to manway closures and the DOT's performance standards for components mounted on manhole covers on tanks carrying hazardous materials. The Safety Board concluded that gasoline was released through an opening in the manhole cover for the front compartment, most likely after a liquid-level sensor was dislodged by a dynamic surge of the gasoline cargo. The Safety Board also concluded that if the liquid-level sensors had been required to meet a performance standard comparable to the static loading standard for the manhole cover, the release of gasoline through the manhole cover may have been averted. As a result of the accident investigation, the Safety Board recommended to the RSPA that all fittings and devices mounted on a manhole cover of cargo tanks meet the same performance standard to withstand the static internal fluid pressure as is required for the manhole cover. The Safety Board also recommended that the NHTSA conduct research of human performance factors that may reduce rollovers in heavy trucks (tractor-semitrailer combinations) as recommended in the Board's 1987 Heavy Truck Safety Study.

On November 5, 1991, the RSPA stated that it will initiate an appropriate rulemaking. On May 21, 1992, the NHTSA advised that it has included funding for the recommended research in its FY94 budget.

Remote Shut-off Valves on Cargo Tanks

As a result of the Safety Board's investigation of sulfur dioxide released from a tank truck during offloading operations, the Safety Board recommended that the RSPA require remote controls for internal shut-off on all newly constructed and currently authorized DOT specification cargo tanks that are used for the transportation of hazardous materials. The driver of this truck suffered fatal injuries, and 14 other people were taken to a hospital for treatment, when the highly toxic gas was released through a crack in the cargo tank's discharge pipe. The driver could not stop the flow of highly toxic gas into the atmosphere, and 40,900 pounds of sulfur dioxide were released. Remote shut-off valves are required on most cargo tanks, but a remote shut-off valve was not required on the cargo tank involved in this incident. On November 5, 1991, the RSPA agreed with the Board's recommendation and stated that a requirement for remote shut-off valves would be included in a proposed rulemaking.

MAJOR PROGRAM DESCRIPTIONS

This section provides descriptions and detailed staffing depth information for each of the Board's major programs.

POLICY AND DIRECTION

Policy and direction at the Safety Board is provided by the Offices of the Chairman, Vice Chairman, and Members of the Board, assisted by the Office of the Managing Director, the Office of Public Affairs, the Office of Congressional and Intergovernmental Relations, the Office of the General Counsel, and the Office of Safety Recommendations.

1. Policy Development - To carry out the duties and responsibilities of the Board as prescribed in the Independent Safety Board Act of 1974, the Board Members establish policy on transportation safety issues and problems and on Board goals, objectives, and operations; review and approve all Board reports and safety recommendations; provide appellate review of FAA certificate and civil penalty actions and Coast Guard certificate actions; preside over all public hearings; testify before Congressional committees; act as spokespersons to the transportation industry, other government agencies, and the public; and ensure equal employment practices throughout the Board.

2. Management - To ensure the effective implementation of the Board's programs, the Office of the Managing Director coordinates and directs the day-to-day operations of the staff; schedules and manages the Board's review of major reports; and provides executive secretariat services to the Board.

3. Public Information - To keep the public informed on the work of the Board and its efforts to improve transportation safety, the Office of Public Affairs answers inquiries from the public, the news media, and the transportation industry; provides support to the Member who represents the Board at major accident sites; and generally attempts to improve the dissemination of safety information and increase public awareness of the Board's activities in transportation safety.

4. Government Relations - To keep Congress and Federal, state, and local government agencies informed on the work of the Board and its efforts to improve transportation safety, the Office of Congressional and Intergovernmental Relations responds to inquiries and addresses problems and concerns raised by the Congress and other government entities; prepares testimony for Board participation in Congressional and state legislative hearings; and obtains support for Safety Board-sponsored legislation at the Federal, as well as the state and local levels.

5. Legal Services - The Office of the General Counsel provides internal advice and drafting assistance on legal aspects of policy matters, legislation, testimony, Board rules, and other matters of legal significance; ensures timely and objective review of airman and seaman appeals from certificate actions and civil penalties; assists the Department of Justice in representing the Board in court proceedings; and provides legal assistance and guidance to the Board's other offices regarding hearings, appearances as witnesses, and the taking of depositions.

6. Safety Recommendations - The Office of Safety Recommendations ensures that the Board issues appropriate and effective safety recommendations to enhance safety in all transportation modes that are clearly written, concise, and answer a demonstrated need; develops programs to increase the degree of acceptance of safety recommendations by recipients; and manages and coordinates the Board's "Most Wanted" Safety Recommendations Program.

STAFFING DEPTH IN VARIOUS SPECIALTIES
FYs 1992 - 1994

POLICY & DIRECTION	FY 1992	CHANGE	FY 1993	CHANGE	FY 1994
Board Members/Staff	15	1	16	0	16
Editors	2	0	2	0	2
Public Affairs Officer	1	0	1	0	1
Public Affairs Specialists	2	0	2	0	2
State and Local Gov't Liaison	1	0	1	0	1
Gov't Relations Assistant	1	0	1	0	1
Attorneys - General	2	0	2	0	2
Attorneys - Appeals	3	0	3	-1	2
Paralegal/Legal Technician	1	0	1	0	1
Safety Recommendations Coordinator	1	0	1	0	1
Safety Recommendations Specialist	1	0	1	0	1
Information Systems Manager	1	0	1	0	1
Supervisory	6	0	6	0	6
Administrative/Clerical	6	0	6	0	6
Total	43	1	44	-1	43

NOTE: This table does not reflect the temporary position realignment planned for fiscal year 1993 to provide additional legal support.

This program currently has 43 permanent staff on board.

AVIATION SAFETY

The Office of Aviation Safety investigates, or causes to be investigated, all aviation accidents and incidents; develops proposed probable cause(s) of accidents; formulates recommendations to minimize their recurrence; and prepares detailed reports for use by other government agencies, Congress, the transportation industry, and the traveling public.

The Office also manages the investigation of major aviation accidents -- those accidents for which multi-disciplinary teams (go-teams) are sent to the accident site. Smaller-scale accidents are usually investigated by one person or a partial team from the Safety Board's regional offices.

The staff of the Office is located in the Washington headquarters and in nine regional and field offices located in major cities throughout the United States. The Office is comprised of five divisions: Major Investigations, Field Operations and General Aviation, Operational Factors and Human Performance, Aviation Engineering, and Survival Factors. These divisions provide the team leaders (Investigators-In-Charge) and some of the group chairmen for the "go-teams" that investigate major accidents and selected incidents.

When the Safety Board is notified of a major accident, it launches a "go-team" which varies in size depending upon the severity of the accident and the complexity of the issues involved. The team consists of experts in as many as 14 different specialties, including materials analysis, operational and environmental factors, systems design and support, human performance, and survival factors. Each expert manages other experts from industry and government in the collection of the facts, conditions, and circumstances surrounding the accident. The participation of these other "parties" greatly multiplies the Board's resources and ensures general agreement over the findings of the investigation, and allows first-hand access to information so that appropriate corrective actions may be taken by the parties.

A public hearing may be convened, or depositions may be taken, to gather additional factual information in connection with an investigation. After the investigation is complete, a detailed narrative report, which analyzes the investigation record and identifies the probable cause(s) of the accident, is then prepared. A major investigation takes anywhere from six months to a year to complete. Safety recommendations emanating from the major investigations generally are included in the final accident report. However, when appropriate, safety recommendations may be issued at any time during the course of an investigation.

Below is a description of the various functions of this office:

1. Major Investigations - The Major Investigations Division provides the Investigator-In-Charge and also coordinates the preparation of the Safety Board's comprehensive aviation accident reports.

   The group chairmen, under the direction of the Investigator-In-Charge (IIC), coordinate the efforts of participants in the accident investigations who are provided by industry and other government agencies. Each group conducts an objective and thorough technical investigation of the accident, and produces separate factual and analytical reports that are incorporated into the final Board report on the accident. The reports are likely to include proposed safety recommendations to correct deficiencies found and prevent future accidents from similar causes.

   The Major Investigations division also provides the accredited representative for the investigation of civil aviation accidents occurring in other countries. The accredited representative serves as the U.S. representative and assists foreign governments in their accident investigations in accordance with international treaties. The accredited representative informs domestic aviation interests of the progress of an investigation, while providing needed technical expertise, as requested, to foreign governments. Safety issues that are uncovered during such investigations and which may adversely affect U.S. aviation safety or the safety of aircraft or aircraft components manufactured in the U.S., are brought to the attention of the FAA and U.S. industry representatives.

2. Field Operations and General Aviation - The Field Operations and General Aviation Division consists of aviation investigators located in the Board's Washington, D.C. headquarters and nine regional and field offices in major cities across the United States. The division provides support to major investigations and manages the investigation of smaller-scale accidents that usually are investigated by one person or a partial team from the Safety Board. The Division currently investigates approximately 2,500 accidents and incidents annually.

   -- Field Investigations - Aviation accidents/incidents meeting the Board's accident selection criteria are investigated as "field" accident/incident investigations. They are conducted in a manner similar to a major investigation, but because the investigation is usually much smaller in scope, it often is conducted by a single investigator who, working with representatives from other parties, gathers all of the detailed information pertinent to the accident. During each investigation, investigators must always consider ways to prevent similar types of accidents from recurring through an informal on-scene recommended solution, or through the Board's formal safety recommendation process. In addition, field investigators provide support to major aviation accidents which occur in the geographic (several state) area of the regional office.

-- Limited Investigations - "Limited" investigations generally are conducted for nonfatal aviation accidents in which the aircraft is substantially damaged or destroyed.

-- Report Analysis - Analysts located in the Washington headquarters are responsible for reviewing the standardized accident forms and narrative reports prepared by the regional investigators for the public record of the investigation. Computer "brief" reports containing relevant facts, findings, and probable cause(s) and factors are prepared for all field and limited investigations, and summary narrative reports are prepared for selected cases. The data from all investigations is maintained to identify trends,assess program effectiveness, provide statistical support for Safety Board studies and safety recommendations, and support other related safety purposes.

3. Operational Factors

-- Air Traffic Control (ATC) - Examines ATC facilities, procedures, and flight handling, including ground-to-air voice transmissions, and develops flight histories from Air Route Traffic Control Center and terminal facility radar records.

-- Operations - Examines operational factors involved in the flight operations of the carrier and the airport, and in the flight training and experience of the flightcrew.

-- Human Performance - Examines the performance of persons whose actions may have caused or contributed to an accident, including the person's knowledge, experience, training, and physical abilities; the adequacy of established procedures; work habit patterns, and the interrelationships with management; the equipment design, and operator-equipment interaction dynamics (ergonomics); and the environment as it may affect the person's ability to sense and perform.

-- Weather - Examines the meteorological/environmental conditions which may have caused or contributed to an accident.

4. Aviation Engineering

-- Power Plants - Examines the airworthiness of aircraft engines.

-- Structures - Examines the integrity of aircraft structures and flight controls including the adequacy of design and certification.

-- Systems - Examines the airworthiness of aircraft flight controls, and electrical, hydraulic, and avionic systems.

-- Maintenance Records - Examines the service history and maintenance of aircraft systems, structures, and powerplants.

5. Survival Factors - Examines factors that affect the survival of persons involved in accidents, including the cause of injuries sustained by occupants of the aircraft involved or other affected persons. The Survival Factors Division also examines safety procedures, crashworthiness, equipment design, emergency responsiveness, crewmember emergency procedures training, and airport certification.

STAFFING DEPTH IN VARIOUS SPECIALTIES
FYs 1992 - 1994

AVIATION SAFETY	FY 1992	CHANGE	FY 1993	CHANGE	FY 1994
MAJOR INVESTIGATIONS:					
Investigator-In-Charge	6	0	6	0	6
Air Safety Investigator (Logistics)	1	0	1	0	1
Aircraft Operations	3	0	3	0	3
Air Traffic Control	3	0	3	0	3
Meteorology	2	0	2	0	2
Airframe Structures	3	0	3	0	3
Aircraft Systems - Avionics	1	0	1	0	1
Aircraft Systems - Hydraulics	2	0	2	-1	1
Aircraft Airworthiness	2	0	2	0	2
Aircraft Power Plants	3	0	3	0	3
Aircraft Maintenance Records	1	0	1	0	1
Human Performance	2	1	3	-1	2
Survival Factors					
General	1	1	2	-1	1
Crashworthiness	1	0	1	0	1
Cabin Safety	1	0	1	0	1
Emergency Response	1	0	1	0	1
Safety Recommendations	1	0	1	0	1
Technical Training Coordinator	1	0	1	0	1
Technical Writer	1	0	1	0	1
Supervisory	6	0	6	0	6
Administrative/Clerical	9	0	9	0	9
Total	51	2	53	-3	50
FIELD INVESTIGATIONS:*					
Air Safety Investigator	49	0	49	0	49
Helicopter Specialist	1	0	1	0	1
General Aviation Engineering	2	0	2	0	2
Accident Analysis	3	0	3	0	3
Safety Recommendations	1	0	1	0	1
Accident Data Specialist	1	0	1	0	1
Supervisory	9	0	9	0	9
Administrative/Clerical	11	0	11	0	11
Total	77	0	77	0	77
TOTAL, AVIATION SAFETY	128	2	130	-3	127

* Staff covers Washington headquarters and nine regional locations.

NOTE: This program currently has 130 permanent staff on board.

SURFACE TRANSPORTATION SAFETY

The Office of Surface Transportation Safety improves the safety of the public by changing surface transportation policies, practices, and systems in government and industry through independent accident investigations, and through advocacy and oversight.

The Office manages the investigations of major transportation accidents -- those accidents for which multi-disciplinary teams (go-teams) are sent to the accident site. Smaller-scale accidents are usually investigated by one person or a partial team from the Safety Board's regional offices.

The staff of the Office is located both in the Washington headquarters and in regional offices located in major cities throughout the United States. The Office is comprised of six divisions: Railroad, Highway, Marine, Pipeline, Human Performance, and Survival Factors. The modal divisions (Railroad, Highway, Marine, and Pipeline) provide the team leaders (Investigators-In-Charge) for the "go-teams" that investigate major surface transportation accidents and selected incidents. These divisions also coordinate the preparation of the Safety Board's comprehensive accident reports.

When the Safety Board is notified of a major accident, it launches a "go-team" which varies in size depending upon the severity of the accident and the complexity of the issues involved. As with the aviation accidents investigated by the Board's Office of Aviation Safety, these "go-teams consist of experts in various technical specialties, including materials analysis, operational and environmental factors, systems design and support, human performance, and survival factors. Each expert manages other experts from industry and government in the collection of the facts, conditions, and circumstances surrounding the accident.

A public hearing may be convened, or depositions may be taken, to gather additional factual information in connection with an investigation. After the investigation is complete, a detailed narrative report, which analyzes the investigation record and identifies the probable cause(s) of the accident, is prepared. A major investigation takes anywhere from six months to a year to complete. Safety recommendations emanating from the major investigations are generally included in the final accident report. However, when appropriate, safety recommendations may be issued at any time during the course of an investigation. The Office also is responsible for follow-up letters to safety recommendation recipients, once the agency or organization has responded to a Safety Board recommendation.

Below is a description of the various functions of this office:

1. Major Investigations - Each of the modal divisions (Railroad, Highway, Marine, and Pipeline) provides the Investigator-In-Charge who manages each major investigation and who also coordinates the preparation of the Safety Board's comprehensive accident reports.

   The group chairmen, under the direction of the Investigator-In-Charge (IIC), coordinate the efforts of participants in the accident investigations who are provided by industry and other government agencies. Each group conducts an objective and thorough technical investigation of the accident and produces separate factual and analytical reports which are incorporated into the final Board report on the accident. The reports are likely to include proposed safety recommendations to correct deficiencies found, and prevent future accidents from similar causes.

2. Field Investigations - Railroad and highway accidents/incidents meeting the Board's accident selection criteria are investigated as "field" accident/incident investigations. They are conducted in a manner similar to a major investigation, but because the investigation is usually much smaller in scope, it often is conducted by a single investigator who, working with representatives from other parties, gathers all of the detailed information pertinent to the accident. During each investigation, investigators must always consider ways to prevent similar types of accidents from recurring through an informal on-scene recommended solution or through the Board's formal safety recommendation process. In addition, field investigators provide support to major accidents. Many of the accidents are investigated in support of one or more of the Board's several safety studies.

3. Human Performance - Examines the performance of persons whose actions may have caused or contributed to the occurrence of an accident in all transportation modes including the person's knowledge, experience, training, and physical abilities; the adequacy of established procedures; work habit patterns, and the interrelationships with management; the equipment design, and operator-equipment interaction dynamics (ergonomics); and the environment as it may affect the person's ability to sense and perform.

4. Survival Factors - Examines factors that affect the survival of persons involved in accidents in all transportation modes including the cause of injuries sustained by occupants of the vehicle involved or by other affected persons. Also, examines safety procedures, vehicle crashworthiness, equipment design, and emergency responsiveness.

5. Weather - Examines the meteorological/environmental conditions which may have caused or contributed to an accident.

STAFFING DEPTH IN VARIOUS SPECIALTIES
FYs 1992 - 1994

SURFACE TRANSPORTATION SAFETY	FY 1992	CHANGE	FY 1993	CHANGE	FY 1994
MAJOR INVESTIGATIONS:					
RAILROAD					
Investigator-in-Charge	4	0	4	0	4
Train Control	1	0	1	0	1
Mechanical Engineering	1	0	1	0	1
Quality Assurance	1	0	1	0	1
Human Performance	1	0	1	-1	0
Survival Factors	0	1	1	0	1
Safety Recommendations	1	0	1	0	1
HIGHWAY					
Investigator-in-Charge	4	0	4	0	4
Bridge Engineering	1	0	1	-1	0
Highway Engineering	1	0	1	0	1
Automotive Engineering	1	0	1	0	1
Operations	0	1	1	0	1
Human Performance	1	0	1	0	1
Survival Factors	1	0	1	0	1
Safety Recommendations	1	0	1	0	1
MARINE					
Investigator-In-Charge	5	0	5	0	5
Naval Architecture	2	0	2	0	2
Vessel Operations	1	0	1	0	1
Vessel Engineering	1	0	1	0	1
Human Performance	1	0	1	0	1
Survival Factors	1	0	1	-1	0
Safety Recommendations	1	0	1	0	1
PIPELINE					
Investigator-In-Charge	2	0	2	0	2
Human Performance	1	0	1	0	1
Survival Factors	1	0	1	0	1
CROSSMODAL					
Technical Writer	1	0	1	0	1
Editor	2	0	2	0	2
Supervisory	9	0	9	0	9
Administrative/Clerical	9	0	9	0	9
Total	57	2	59	-3	56

	FY 1992	CHANGE	FY 1993	CHANGE	FY 1994
FIELD INVESTIGATIONS:*					
Railroad Safety Investigator	9	0	9	0	9
Highway Safety Investigator	12	0	12	0	12
Supervisory	7	0	7	0	7
Administrative/Clerical	6	0	6	0	6
Total	34	0	34	0	34
TOTAL, SURFACE TRANSPORTATION SAFETY	91	2	93	-3	90

* Staff covers Washington headquarters and seven regional locations (three Railroad and four Highway).

NOTE: This program currently has 95 permanent staff on board.

RESEARCH AND ENGINEERING

The Office of Research and Engineering provides laboratory technical support to the Board's accident investigations, conducts investigations of hazardous materials accidents and incidents (and fire and explosions) in all transportation modes, and conducts safety studies which examine safety issues in all modes of transportation. The Office is also responsible for maintaining the Board's aviation accident data base, for providing periodic statistical reviews of aviation accidents, for satisfying public inquiries regarding Board investigations and studies, and for providing computer services and support to all Board organizations.

Below is a description of the various functions of this office:

1. Safety Studies - Evaluates the safety effectiveness of Federal, State, local, and industry transportation safety programs by exploring policy issues, program coverage, and management effectiveness. Studies of major transportation issues also are conducted by analyzing accident data derived from past accidents or special investigations, by analyzing accident statistics, and by studying transportation systems or subsystems to identify and define safety problems. Comprehensive reports containing recommendations for corrective action are prepared for public release.

2. Engineering Services

    -- Voice Recorders - Examines recorded electronic information in the form of radio, video, and recorded electronic communications in aircraft, ships, trains, and their supporting systems.

    -- Data Recorders - Extracts, formats, and analyzes data from digital and mechanical aircraft flight recorders and recorders installed in locomotives, large ships, and some highway vehicles.

    -- Vehicle Performance - Uses advanced computer technology to examine the performance characteristics of vehicles in accidents, including animated three-dimensional vehicular performance studies and complex analytical studies in vehicle dynamics and operation.

3. Materials Analysis - Provides materials engineering support for all modes of transportation in areas such as: (a) fracture, deformation, and failure analysis; (b) chemical composition and strength of materials; (c) characteristics of materials; (d) design, fabrication, and testing of components; (e) nondestructive inspection; (f) friction, rolling contact, and wear; (g) impact and crash reconstruction; (h) instrument and system component inspection and analysis; and (i) fire and explosion effects.

4. Hazardous Materials Accident Investigation - Manages the investigation of selected hazardous materials accidents and incidents. When hazardous materials safety issues are the overriding safety issues in an accident or incident, for any mode of transportation, an investigator-in-charge may be assigned from this division with appropriate surface or aviation support. The Division also provides technical support to modal accident investigations that involve hazardous materials. This support includes: (a) identifying and documenting the hazard characteristics of materials transported, the threats posed to public safety when those materials are released into the environment, and the consequences of unintentional releases of those materials during transportation; (b) evaluating the level of packaging protection required during transportation in conjunction with the severity of hazards posed; and (c) evaluating the construction, inspection, testing, and maintenance of packaging, and their performance in the transportation environment.

5. Analysis and Data - Manages the aviation accident data base and selected surface transportation data bases and the retrieval and analysis of accident data. Accessible and accurate data are essential to pinpointing areas of safety need, developing insight into the best solutions, monitoring the effectiveness of safety countermeasures, and reviewing the progress of safety efforts. The Division produces statistical summaries of accident data in regularly published reports and analyses in safety studies. It also is responsible for the public inquires function which maintains accident investigation files and Safety Board reports and responds to public requests for information.

6. Computer Services - Provides data processing support and computer services for all of the Board's organizations. To accomplish this the computer services staff manages all mainframe and microcomputer hardware and software resources, provides user support and training, and supports the following applications: aviation accident data, surface transportation accident data, safety recommendations, accounting and budgeting, staffing control, correspondence tracking, inventory control, word processing, and Board-wide networking of computer resources.

STAFFING DEPTH IN VARIOUS SPECIALTIES
FYs 1992- 1994

RESEARCH AND ENGINEERING	FY 1992	CHANGE	FY 1993	CHANGE	FY 1994
Cockpit Voice Recorder	2	0	2	0	2
Flight Data Recorder	3	0	3	-1	2
Aircraft Performance	2	0	2	0	2
Engineering Applications	1	0	1	0	1
Engineering Technician	0	1	1	0	1
Safety Studies					
Aviation	1	0	1	0	1
Railroad	1	0	1	0	1
Highway	1	0	1	0	1
Marine	1	0	1	0	1
Alcohol/Drugs Coordinator	1	-1	0	0	0
Crossmodal	2	0	2	0	2
Investigator-In-Charge (Haz Mat)	2	0	2	0	2
Accident Data					
Research Methods/Statistics	1	0	1	0	1
Aviation Analyst	1	0	1	0	1
Accident Data Specialist	2	0	2	0	2
Records Management Officer	1	0	1	0	1
Records Management Specialist	2	0	2	0	2
Metallurgy	3	0	3	0	3
Materials Analysis	2	0	2	0	2
Chemist/Fire/Explosions	1	0	1	0	1
Technical Writer	1	0	1	0	1
Writer/Editor	1	0	1	0	1
Computer Specialist (Systems)	1	0	1	0	1
Computer Specialist (Applications)	1	0	1	0	1
Supervisory	8	0	8	0	8
Administrative/Clerical	6	0	6	0	6
TOTAL, RESEARCH AND ENGINEERING	48	0	48	-1	47

NOTE: This program currently has 51 permanent staff on board.

ADMINISTRATION

The Office of Administration is responsible for providing timely, responsive administrative support and services to the Safety Board and the public in the following areas:

1. Financial Management - The purpose of this activity is to obtain sufficient resources from the Congress to operate the Board's programs; to ensure that Board funds are properly spent and properly controlled; to maximize the efficient and effective use of Board funds; and to manage the contracting and procurement functions.

   To accomplish this, the financial management staff must develop, prepare, and coordinate annual budget requests and triennial authorization requests to OMB and Congress; evaluate program operations; conduct financial reviews to maintain positive control over appropriated funds and ensure funds are expended in accordance with approved programs; control personnel resources; develop and maintain an accounting system that provides accountability for expended resources and furnishes timely external and internal financial management reports; audit and certify bills and vouchers for payment; conduct financial and program audits of Board functions; and procure and contract for needed goods and services.

2. Human Resource Management - The purpose of this activity is to effectively manage the personnel and training program in order to improve productivity and morale, to maintain compliance with Federal laws and regulations, and to maintain a highly skilled, efficient and diversified workforce.

   To accomplish this, the personnel and training staff must recruit and process applications for all vacant positions; actively recruit minority and women candidates for all positions; process personnel actions for all hires, promotions, and salary adjustments; provide employees with employee services and benefit information, including counseling in such areas as life and health insurance coverage and retirement benefits; review and classify positions to maintain an accurate grade and position structure; develop and implement personnel and training programs, such as performance appraisal systems and incentive award programs; and manage the training program.

3. Facilities Management - The purpose of this activity is to manage the building facilities, telephones, printing, graphics, photographic, mail/messenger service functions, and physical security.

   To accomplish this, the facilities staff must provide and maintain the physical working environment for headquarters and the Board's nine regional offices; provide telephone services; maintain the inventory of the Board's accountable property; provide printing, graphic, and photographic services; provide internal and external mail and messenger services; and ensure adequate physical security.

STAFFING DEPTH IN VARIOUS SPECIALTIES
FYs 1992 - 1994

ADMINISTRATION	FY 1992	CHANGE	FY 1993	CHANGE	FY 1994
Budget Officer	1	0	1	0	1
Budget Analyst	1	1	2	0	2
Budget Assistant	1	-1	0	0	0
Accounting Officer	1	0	1	0	1
Financial Systems Design Analyst	1	0	1	0	1
Accountant	1	0	1	0	1
Financial Specialist	1	0	1	0	1
Accounting Technician	2	0	2	0	2
Human Resources					
Classification	1	0	1	0	1
Staffing	3	0	3	-1	2
Employee Development/Relations	1	0	1	0	1
Operations (Asst)	1	0	1	0	1
Contracts/Procurement	2	0	2	0	2
Facilities Specialist	1	0	1	0	1
Printing Specialist	1	0	1	0	1
Mail Clerk	1	0	1	0	1
Supervisory	5	0	5	0	5
Administrative/Clerical	4	0	4	0	4
TOTAL, ADMINISTRATION	29	0	29	-1	28

NOTE: This program currently has 32 permanent staff on board.

ADMINISTRATIVE LAW JUDGES

The Safety Board serves as the "court of appeal" for any airman whenever certificate action is taken by the Administrator of the Federal Aviation Administration (FAA).

Under the Independent Safety Board Act of 1974, the Board's Administrative Law Judges hear, consider, and issue initial decisions on appeals from FAA certificate actions taken under Sections 602(b), 609, 901(a)(3), and 501(c) of the Federal Aviation Act of 1958, as amended. Judges' decisions may be appealed to the five-member Board by the airman or the FAA.

The Board's review of the appeal encompasses the transcripts of the proceeding, the Judge's decision, and appeal briefs submitted by the parties.

Under the Equal Access to Justice Act of 1980, as amended (EAJA), the Judges also review and decide applications for attorney fees and expenses from airmen who prevail against the FAA in the adversary adjudications brought pursuant to Sections 609 and 901(a)(3) of the Federal Aviation Act of 1958, as amended.

The final decision of the full Board is subject to judicial review by the U.S. Court of Appeals pursuant to Section 1006 of the Federal Aviation Act of 1958, as amended. The right of appeal to the U.S. Court of Appeals is extended or granted to both the airman and the FAA. Upon review, the Court has the power to affirm, modify, or set aside the full Board's Opinions and Orders, in whole or in part; and if necessary, to order further proceedings by the Board. The judgment and decree of the Court of Appeals is subject to review by the Supreme Court of the United States.

STAFFING DEPTH IN VARIOUS SPECIALTIES
FYs 1992 - 1994

ADMINISTRATIVE LAW JUDGES	FY 1992	CHANGE	FY 1993	CHANGE	FY 1994
Judge	6	0	6	0	6
Paralegal/Appeals Administrator	1	0	1	0	1
Administrative/Clerical	6	0	6	0	6
TOTAL, ADMINISTRATIVE LAW JUDGES	13	0	13	0	13

NOTE: This program currently has 11 permanent staff on board.

THE ROLE OF THE SAFETY BOARD AND OTHER ORGANIZATIONS IN TRANSPORTATION SAFETY

Within the transportation community, each organization has been established to fulfill a unique role, and, thus, views its accident investigation function from a different perspective. Therefore, each agency investigates accidents to varying degrees of depth and with a different goal in mind. For example, the Safety Board's primary purpose is promoting transportation safety and conducting very detailed and thorough accident investigations, which often uncover significant system-wide problems that must be corrected in order to prevent future accidents. Recommended solutions to correct these problems are proposed to other government agencies and/or industries for implementation.

The Safety Board has no authority to regulate nor is it directly involved in the operation of any mode of transportation. Therefore, it has the unique ability to oversee the transportation system from a totally objective viewpoint and to make recommendations for needed safety improvements without deference to existing policies or regulations. The investigative approach of other organizations, whose primary functions involve both the regulation and the operation of a transportation system or subsystem, serves the specific purpose, as described in the paragraphs that follow, for which they were established. In general, their investigative role differs from that of the Safety Board in that:

-- other agencies' investigations generally focus on their reinforcement responsibilities, such as determining if a shipper, carrier, or manufacturer has violated existing regulations, rather than on possible changes to regulations that may be needed to prevent similar accidents;

-- the persons who conduct the investigations for these organizations often are not specifically trained (or have very limited training) in accident investigation, while the Board's staff is uniquely qualified to investigate accidents and is provided with currency and refresher training in investigative analysis at our accident investigation school;

-- the investigations often are narrow in scope or are conducted for data collection or statistical analysis only, and, therefore, cannot be used as a basis for safety improvement recommendations;

-- unlike the Safety Board, these organizations do not have a formal safety recommendation process that includes disseminating information and recommendations to other agencies or industry groups whose actions are necessary to effect the recommended safety improvements; and

-- the results of other agencies' investigations generally are not published, while the Safety Board issues reports on all accidents for which it determines a probable cause.

An invaluable part of the Safety Board's continuing task is the collection of accident data. Although the Board is considered the primary source for aviation accident data, its approach goes beyond the statistics and beyond establishing probable cause(s). For example, the Safety Board's approach also includes examination of all factors which led to an accident or incident. This is done in order to ensure that those agencies whose role it is to establish transportation policies and regulations are provided with a thorough and objective analysis of both actual and potential deficiencies in the transportation system, as well as proposed solutions to correct these deficiencies.

The National Transportation Safety Board

The National Transportation Safety Board is an independent agency charged with determining the probable cause(s) of transportation accidents and promoting transportation safety. The Board investigates accidents, conducts safety studies, evaluates the effectiveness of other government agencies' programs for preventing transportation accidents, and reviews appeals of adverse actions by the Administrators of agencies of the Department of Transportation involving airman and seaman certificates and licenses.

Most importantly, the Board makes safety recommendations, based on its investigations and studies, to Federal, State and local government agencies and to the transportation industry regarding actions that should be taken to prevent accidents. Safety recommendations are the focal point of the Board's efforts to improve safety in the transportation system.

Historical Perspective

The Board's origins can be found in the Air Commerce Act of 1926, in which Congress charged the Commerce Department with investigating the causes of aircraft accidents. This responsibility fell under the Bureau of Aviation Safety within the Civil Aeronautics Board. In 1966, Congress consolidated transportation agencies into the U.S. Department of Transportation (DOT) and also created the National Transportation Safety Board (NTSB) within the DOT. In establishing the Board, Congress believed that the NTSB would develop a higher degree of safety than separate safety functions in each mode could achieve. Since 1967 the Board has investigated accidents in all modes of transportation including aviation, highway, marine, rail, and pipeline. However, in 1974, Congress made the Board independent of the DOT saying: "No Federal agency can properly perform such functions unless it is totally separate and independent from any other . . . agency of the United States." Because the DOT is charged with both the operation and the safety of the U.S. transportation system, and because accidents suggest deficiencies in this system, the Safety Board's independent investigative role is essential to the Board satisfying the public's demand for objective oversight of this system. In order to maintain its objectivity, the Board was not given the authority to regulate the transportation industry. Its effectiveness, therefore, depends on its reputation for timely and accurate determination of the cause of accidents and for issuing realistic and feasible safety recommendations.

The most visible portion of the Safety Board's accident investigation role involves the management of major accident investigations. The investigations include the participation of DOT modal agencies and other "parties to the investigations" (vehicle and component manufacturers, operators, employee unions, and State and local government agencies). Such parties to an investigation may have specific conflicts of interest, which prevent them from being totally objective during an investigation. The Safety Board, however, has no conflict of interest, and thereby maintains its objectivity as it manages the experts and parties to ensure a thorough, open, and complete investigation.

AVIATION

The Federal Aviation Administration

The FAA has about 2,575 general aviation and air carrier inspectors who, in addition to their inspection duties, investigate about ten percent of the general aviation accidents. These investigations primarily consist of agricultural, home-built, and experimental aircraft, and some selected accidents not meeting the Board's selection criteria.

Prior to 1982, the Safety Board delegated about 75 percent of all aviation accidents to the FAA but found this procedure unsatisfactory. Because of the enforcement focus of the FAA's investigations, the Board found it necessary to collect additional safety-related information in order to determine the cause of the accident. The FAA investigations were focused on finding operator violations, sometimes at the expense of the inspectors' objectivity. As operations and maintenance inspectors, their primary duties are aircraft and operations inspections, airman testing and certification, and pilot education. Accident investigation is not a major, much less a full-time, assignment for these inspectors. Finally, not all of the FAA inspectors have been trained in accident investigation; for those who have, necessary refresher training has been nearly nonexistent. For this reason, in 1982, the Board significantly reduced the number of accidents it delegated to the FAA.

The Safety Board's Role in Aviation Accident Investigation

The Federal Aviation Act of 1958 and the Independent Safety Board Act of 1974 placed the responsibility for investigating and determining the probable cause of all U.S. civil aviation accidents/incidents with the Safety Board. Although the Safety Board may delegate the actual investigation of the accident, it still is responsible for determining the probable cause.

In addition, the Board is charged to carry out studies, special investigations, evaluations, and assessments of matters pertaining to aviation safety, including human injury avoidance, other agencies' aviation safety consciousness and efficacy in preventing aviation accidents, and the adequacy of safeguards and procedures for transporting hazardous materials by air.

Because of the international nature of the world's aviation industry and the leading role of the U.S. in the technological progress of aviation, the Safety Board's role in the investigation of domestic and international aviation accidents is essential to the enhancement of worldwide airline safety for all persons who travel by air. In fact, the worldwide public reaction to any major air disaster has an adverse effect on U.S. airlines and the confidence of U.S. citizens in the safety of airlines in general.

Further, the Board is charged with fulfilling the U.S. obligations for international aviation accident investigations established by the International Civil Aviation Organization treaty. As such, the Safety Board appoints a leader (U.S. Accredited Representative) of the U.S. team who participates in the investigation of major accidents overseas. These accidents include U.S. airline accidents in foreign territory and accidents involving U.S.-manufactured aircraft operated by foreign airlines overseas. Because the United States maintains a reputation as the world leader in aviation safety, many governments and aircraft industry representatives look to the Safety Board for the results of its investigations and safety recommendations. In addition, because of its advanced laboratory equipment and analysis capabilities, the Safety Board often is called upon by foreign governments to provide expertise in examining data from their aircraft accident investigations. The Safety Board is pleased to provide such services to the extent that it can, and still provide technical support to domestic accident investigations. The Board's major aviation accident reports, safety recommendations, and accident statistics are disseminated worldwide and have a direct influence on the safety of foreign airlines.

A less visible portion of the Safety Board's aviation accident investigation role involves the investigation of non-catastrophic and general aviation accidents. These accidents involve specific issues of special concern to the Board, i.e., air carrier and other large aircraft accidents; fatal and serious injury commuter and air taxi accidents; midair collisions; in-flight breakup or in-flight fire accidents; accidents involving newly certificated aircraft; accidents involving high performance turbine-powered airplanes; and accidents implicating air traffic control services, facilities, or procedures. The Safety Board also investigates accidents involving property damage only, in which a relatively limited, but highly focused, investigation suffices for data collection purposes. Further, the investigation of selected incidents not meeting the definition of an accident often provides valuable prevention measures to preclude a serious accident from occurring.

RAILROAD

Accident Investigation by the Federal Railroad Administration

The Federal Railroad Administration (FRA) directly investigates about 200 accidents and collects data on the remaining 8,462 train accident/incidents including grade crossings. The accidents FRA investigates primarily involve the death of a rail employee or the injury of five or more people. The reporting criteria include grade crossing collisions, damage to rail equipment exceeding $6,300 (1991), or death or injury to people. These reporting requirements also preempt states from requiring railroads to file duplicative written accident reports to state officials.

The FRA has about 330 inspectors from various technical disciplines who may investigate accidents. They are trained for accident investigation at the DOT's Transportation Safety Institute.

Railroad Accident Investigation by the States

The states participate with the FRA in enforcing Federal standards on track, signal, and train control, locomotive power and equipment, and operating practices. State programs vary in size and scope depending on the number of the railroads operating in the individual state and the funding support provided by the state legislature. In the past, railroad enforcement programs in 30 states were funded through a 50 percent state/50 percent Federal grant arrangement. The FRA no longer funds this program.

The Safety Board's Role in Railroad Accident Investigation

Since 1966, the primary responsibility for railroad accident investigation has been assigned by Congress to the Safety Board. The Board performs in-depth analyses of selected rail accidents involving a fatality, substantial property damage, or a passenger train. The Safety Board determines the probable cause(s), and issues recommendations to effect changes to prevent similar accidents.

The Board also conducts safety studies of significant railroad safety issues often based on a set of accident investigations specifically undertaken as the basis for the study. In other cases, safety studies may be based on an analysis of regulations, railroad safety programs and procedures, audit reviews of management and operational practices, or similar research approaches. In addition, the Board investigates selected accidents which concern specific accident prevention issues.

Because of its limited resources, the Board is only able to investigate about 100 of the 8,462 accidents/incidents including grade crossings.

HIGHWAY

Accident Investigation and Data Collection by the National Highway Traffic Safety Administration

The National Highway Traffic Safety Administration's (NHTSA) accident investigation role is fulfilled primarily through its data collection efforts. As part of these efforts, NHTSA, in 1979, established the National Accident Sampling System (NASS) program to collect nationally representative motor vehicle accident data, on both fatal and nonfatal accidents, through the investigation of a statistically valid sample of traffic accidents by NASS teams located across the country.

The NASS program is complemented by the Fatal Accident Reporting System (FARS), through which NHTSA collects less detailed information from police reports on all fatal accidents in the United States. The FARS data base, regarded as a census of all fatal accidents, is a completely uncorrected police-reported data base and therefore, contains all the uncertainties and inaccuracies associated with this type of data. This concern with the accuracy of the data collected, particularly occupant protection data, prompted the NHTSA in 1988 to establish two new data collection activities.

A new component of NASS is the Crashworthiness Data System (CDS) which collects data relevant only to the crashworthiness of passenger cars, light trucks, and vans. No data is collected on heavy trucks, motorcycles, or pedestrian fatalities, except when they are involved in accidents with vehicles meeting the selection criteria. NHTSA collects data on about 6;500 accidents annually (700 fatal crashes, 1,500 fatalities/serious injuries and 3,000 to 4,000 tow-away accidents with moderate or less injuries) at 36 CDS sites in 18 states. The new CDS sample is a sample used to project nationwide data.

The General Estimates System (GES), the second new accident sampling systems, is another component of NASS. This system collects data on a wider range of vehicles and is not limited to fatal accidents. The GES program collects data from a sample of police reports involving 50,000 accidents. The data is collected at the 36 NASS crashworthiness sites and 24 additional sites, a total of 60 sites in 24 States.

Accident Investigation by the Office of Motor Carriers

According to the 1990 General Estimates System (GES) data, there were over 42,800 truck/bus accidents. Of those, the Office of Motor Carriers (OMC) conducted a few selective accident investigation and hazardous materials incident investigations. The OMC also assisted the NTSB in some of its investigations.

Commercial vehicle accidents investigated by the OMC include but are not limited to: an accident resulting in multiple fatalities, numerous injuries, substantial property damage, or a combination thereof; or an accident likely to result in widespread public interest, and of which detailed knowledge would be beneficial.

The major benefits attributed to the OMC accident investigation functions are support for the OMC enforcement program, identification and correction of safety problems, and identification of the need for new safety regulations or improvements in existing regulations.

Highway Accident Investigation and Data Collection by State or Local Agencies

State and local police historically have investigated a large number of highway accidents, particularly those in which one or more persons are killed. However, police investigations traditionally have been directed at determining "culpability," and collecting specific sets of facts for law enforcement and damage claim purposes which are not suitable for highway research. In most states, data collection and analysis is both inadequate and inaccurate for sound safety improvement evaluation and planning. Data for vehicle crashworthiness issues in particular are lacking. Other deficiencies include:

- incomplete data bases (e.g., 55 percent of persons treated at hospital emergency rooms were not included in police reports);
- restraint status inaccuracies (incorrect and overstated reports of belt use and type of restraint used. The problem has worsened with advent of seat belt use laws.);
- uncertainties about injury severity;
- lack of injury source information; and
- uncertainties about crash severity.

The Safety Board's Role in Highway Accident Investigation

The Safety Board is responsible for the investigation of highway accidents, including railroad grade crossing accidents, that it selects in cooperation with the states. The Board devotes its limited highway investigation resources to accidents that have a significant impact on the public's confidence in highway safety, generate high media and/or public interest, or that concern technical safety issues which cause or contribute to accidents or injuries on a national scale.

The Board also conducts safety studies of significant highway safety issues often based on a set of accident investigations specifically undertaken as the basis for the study. In other cases, safety studies may be based on an analysis of regulations, highway safety programs and procedures, audit reviews of management and operational practices, or similar research approaches.

The objectives of the Board's highway program are carried out through (1) the multi-disciplinary, in-depth investigation of major catastrophic accidents involving multiple fatalities or substantial property damage,

(2) noncatastrophic accident investigations conducted in support of selected highway safety emphasis areas, and (3) special investigations concerning a predetermined subject selected in support of a safety study. As in other modes, the end result of these highway efforts are actions taken by Federal, state, or local agencies, or industry, often emanating from specific Safety Board recommendations to reduce the likelihood or recurrence of transportation accidents, and to make the transportation of persons and property as safe and free from the risk of injury and damage as possible.

MARINE

Accident Investigation by the Coast Guard

The Coast Guard has the authority to investigate commercial vessel accidents which occur in U.S. waters or involve U.S. vessels. Although most Coast Guard investigations normally are informal in nature, the agency occasionally convenes a one-person formal investigation or a formal Marine Board of Investigation. A Marine Board of Investigation is undertaken only in the most serious major marine accidents. Safety Board investigators normally participate in both types of formal investigations. Because of its relatively small staff to handle the high number of reportable accidents (about 3,500), the Coast Guard has been forced to conduct less in-depth investigations. The Coast Guard now has the authority to investigate accidents involving large foreign-flag passenger vessels (i.e. cruise ships) operating from U.S. ports and carrying primarily U.S. passengers when accidents occur in international waters, but thus far has not attempted to use this new authority, relying instead on participating in investigations conducted under international rules.

Recreational Boating Accident Investigation by States

About 900 lives are lost each year in recreational boating accidents. Recreational boating accidents are, for the most part, investigated by the states in whose jurisdiction they occur. State programs for boating accident investigations, and for recreational boating safety in general, vary widely. For example, in some states boating accidents are investigated by the Fish and Game Warden while other states have separate police units for marine matters. State investigation of alcohol use in accidents also varies widely, although many states have made progress in adopting a uniform procedure for addressing this issue. Since 1971, the Coast Guard has been empowered to provide grants-in-aid to the states in an effort to promote uniformity and cooperation regarding boating safety and accident investigation.

The Coast Guard recently has focused its efforts on improving state reporting of accidents for inclusion in the national data base which is published yearly in "Boating Statistics". In particular, both the Coast Guard and the states have agreed that improvements are needed in the uniform reporting of alcohol-related boating accidents, and the National Association of State Boating Law Administrators is working with the Coast Guard to promote these improvements.

The Safety Board's Role in Marine Accident Investigations

Federal marine safety standards came into being before the Civil War, and commercial marine accidents have been investigated by the Federal government since 1871. Before 1966, the U.S. Coast Guard was exclusively responsible for these investigations. When the Safety Board was established in 1966, it was authorized to review Coast Guard investigations and determine the probable cause(s) of those accidents. In 1974, the Safety Board was authorized to investigate marine accidents involving public and non-public vessels and major marine accidents under joint regulations with the Coast Guard. In 1981, in order to preclude any appearance of a conflict of interest on the part of the Coast Guard, the Safety Board and the Coast Guard agreed that, in accidents involving significant safety issues relating to Coast Guard safety functions, the Safety Board may conduct an independent investigation and hearing, with full cooperation by the Coast Guard. The 1981 agreement also stated that the Board would conduct independent investigations of Coast Guard and non-public (commercial) vessel accidents.

Other than the National Transportation Safety Board and the Coast Guard there are no agencies, Federal or State, that have the authority to investigate commercial vessel accidents in U.S. navigable waterways. The Marine Division of the Safety Board consists of eight investigators with an average of more than ten years experience in marine accident investigations and more than 20 years of additional varied experience in the marine field.

Generally, the Coast Guard investigations focus on enforcement, but they will on occasion result in prevention recommendations. Safety Board investigations are directed primarily towards developing safety improvement recommendations while determining the probable cause(s) of an accident. Furthermore, the Safety Board has an extensive monitoring system to ensure that implementation of the recommendations is not delayed or forgotten.

The Safety Board, because it is independent and not directly involved in regulation of the industry, has been the catalyst in moving the Coast Guard and other organizations to improve marine safety by requiring certain equipment, improving procedures, and improving vessel design. It sometimes seems that a catastrophe must occur before the Coast Guard takes action to make safety improvements. The Safety Board, however, is continually promoting safety improvements through its reports. Resulting Safety improvements were identified and recommendations were made as the result of the investigations of fires on the following foreign passenger ships: SCANDINAVIAN SEA, SCANDINAVIAN SUN, SCANDINAVIAN STAR and the EMERALD SEA explosion and fire. There were two deaths and 15 injuries on those four vessels before the 158 fatalities in the SCANDINAVIAN STAR fire in the North Sea. The international community is now planning to initiate safety improvements but, only as a result of that catastrophe.

Of the approximately 4,000 reportable accidents involving commercial vessels and of the more than 6,500 serious recreational boating accidents that occur each year, about 60 accidents fall within the investigative jurisdiction of the Safety Board (i.e., $500,000 in property damage; six or more lives lost; or the total loss of a self-propelled vessel of more than 100 gross tons; or accidents that involve public and non-public vessels with $75,000 in property damage or at least one fatality). However, because of limited resources, the Board is able to independently investigate only about four (5 percent) of these accidents each year.

In addition, the Board investigates about three accidents per year jointly with the Coast Guard, and requests that the Coast Guard investigate the remainder for the Board. In the latter case, the Board determines the probable cause of the accident based on an analysis of the evidence collected and submitted by the Coast Guard.

As in the other transportation modes, the Safety Board also conducts safety studies involving specific marine safety issues. These may be based on previous Safety Board accident investigations, or on analytical reviews of marine regulations, practices, procedures, and standards. Similar to accident investigations and safety studies in the other modes, marine safety studies result in the issuance of safety recommendations to Federal and/or state agencies, private industry, and industry associations.

PIPELINE

Accident Investigations by the Office of Pipeline Safety and by the States

More than 1.6 million miles of pipelines carry natural gas and hazardous liquids to more than 47 million customers in the U.S. The regulation and inspection of this vast network of pipelines and the investigation of accidents for enforcement purposes are shared in a complex pattern of responsibilities among the Office of Pipeline Safety (OPS) of the U.S. Department of Transportation (DOT) and a variety of state agencies. The enforcement of Federal pipeline safety regulations on interstate facilities, including the investigation of accidents, is the responsibility of the OPS. However, given the enormous size of the pipeline system, OPS inspectors located in five regional offices share this responsibility, through a variety of arrangements, with state agencies.

There are a number of limitations on the usefulness of the OPS and state accident investigations. For example, although the OPS requires that a written report be prepared for those accidents investigated by state agency personnel, the state is not required to file these reports with the DOT. Furthermore, despite the fact that the OPS provides general guidance on the types of information that should be included, there is no established format for the preparation of the report nor is there a set time interval after the accident within which the report must be completed.

For accidents investigated by OPS personnel, reports of the investigations are completed in a uniform format and are filed in the regional offices and headquarters, but they are not published. These OPS investigations also provide very little support for safety improvements, as they focus more on determining whether or not Federal regulations were violated. Additionally, these investigations provide no oversight of OPS programs and only limited oversight of state programs.

Nevertheless, the Board has noted substantial improvements in these agencies' accident investigation capabilities in recent years, and the services rendered to the Safety Board by these inspectors often have been invaluable. These improvements are largely due to upgrading of the qualification standards used by the states for inspection personnel and to the higher quality and more widespread training that state personnel are now receiving from industry organizations and the DOT.

Because the bulk of pipeline accident data is, of necessity, recorded by state agencies, the Safety Board believes that the usefulness of State accident reports for improving the safety of pipeline transportation could and should be enhanced by: (I) establishing clear reporting criteria for use by the states; (2) requiring that the state reports be centrally filed; and (3) implementing a data base for these state-produced accident data. Currently, the only data on pipeline accidents that are required to be submitted to the DOT and that are stored for computerized analyses are the industry-prepared leak reports. The valuable resource of state accident reports is not being used to identify emerging safety problems and how to minimize their consequences.

The Safety Board's Role in Pipeline Accident Investigations

The Safety Board is responsible for investigating all pipeline accidents in which there is a fatality or substantial property damage. In addition, the Board also investigates pipeline accidents involving selected accident prevention issues. Under its Memorandum of Understanding with the DOT's Office of Pipeline Safety (OPS), the Board can delegate to the OPS the investigation of accidents that occur when the Board is unable to respond due to insufficient resources. The Board has also developed informal means to enlist investigative assistance from several selected state agencies.

In 1992, preliminary data indicated there were 412 pipeline accidents reported to the OPS under its criteria. These accidents generally involved a death or hospitalization, property damage of more than $50,000, or the release of the transported material into the environment. Three accidents were investigated in depth by the Safety Board, each involving a fatality, substantial property damage, and significant safety issues. The remainder of these accidents were investigated to some degree by the states or the OPS.

The Safety Board selects for investigation by its personnel those pipeline accidents that provide the greater opportunities to address industry-wide safety issues and those related to emerging technologies within the pipeline industries. Of those accidents most likely to be selected as a major Safety

Board investigation, are those that pose significant threats to the environment, that involve pipeline employee qualifications, and that involve inadequacies in the Federal or state pipeline safety regulatory programs.

Liquid pipelines transport about 50% of this Nation's petroleum, and many of the products when released during accidents can significantly threaten the environment, wildlife, other transportation activities, and community water supplies. Recent liquid pipeline accidents have emphasized that while they do not cause large numbers of human casualties (eight in 1991), they result in dollar losses, environmental damages, and disruptions to communities disproportionate to other pipelines. Moreover, such losses have not been equitably considered in developing safety standards on detecting abnormal pipeline operations and systems for minimizing the quantity of products released from pipe failures. Safety Board investigations of such accidents are being used to better define and document safety improvement needs to more promptly identify pipe failure occurrences and means to more promptly control petroleum product releases.

Increased employee turnover and the incorporation of more highly technical operating and monitoring equipment within the pipeline industries have caused the pipeline industries to include new training programs and technologies to provide knowledge generally obtained during years of supervised on-the-job experience. Computer interactive and computer based training programs offer significant potential to improve current training methods; however, their effectiveness when used as the primary method of training has not yet been adequately demonstrated. Safety Board investigations will assess the effectiveness of training programs that incorporate these newer training methods to better define their effectiveness and to identify needed enhancements.

Although common to all pipeline accidents, some accidents present superior opportunities to develop information on the affect of the OPS and/or state pipeline safety regulatory bodies for enhancing pipeline safety. In addressing this aspect of pipeline safety, the Safety Board performs an essential oversight responsibility and is often best able to identify regulatory, inspection, and enforcement program improvements that, when implemented, will result in more effective pipeline safety regulations and more efficient program operations.

HAZARDOUS MATERIALS

Accident Investigations by Administrations of the Department of Transportation (DOT) and by States

About 4 billion tons of regulated hazardous materials are shipped each year with more than 500,000 shipments of hazardous materials entering into this Nation's transportation system daily. Responsibility for the regulation, inspection, and enforcement of the transportation of these hazardous materials shipments is shared in a nonuniform manner among the DOT's modal administrations, RSPA, and the states. The modal administrations are generally responsible for shippers and transporters with some responsibilities being shared with the states. RSPA is responsible for issuing the hazardous materials regulations, and for inspecting shippers and manufacturers of shipping containers that are of a multi-modal nature. The responsibility for investigating transportation accidents is similarly diversified.

The Safety Board's Role in Hazardous Material Accident Investigations

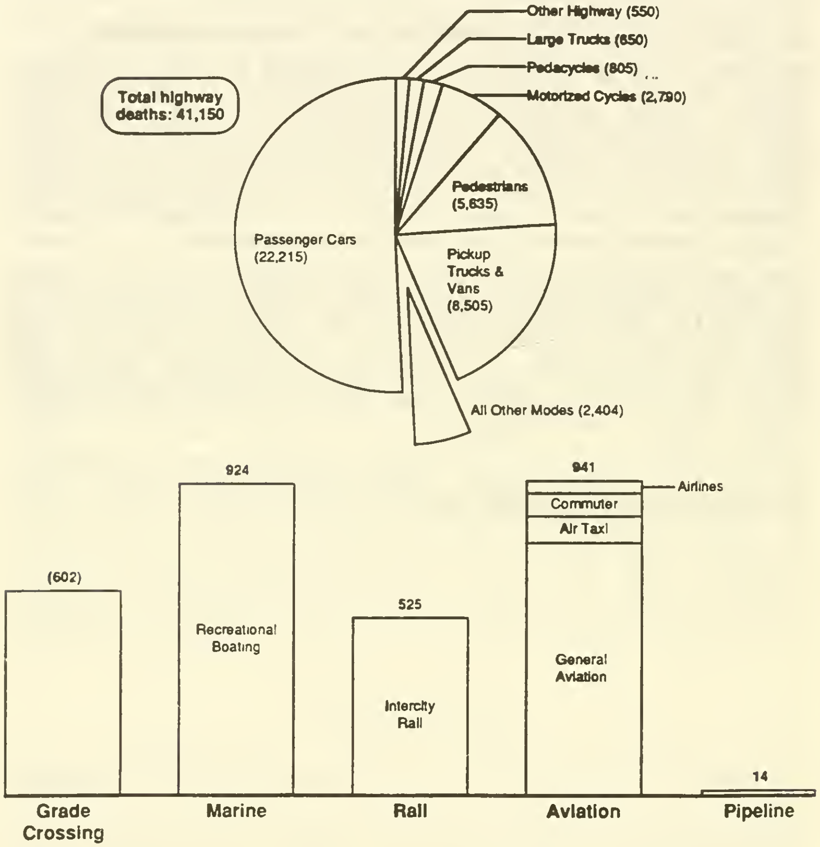
The Safety Board is responsible for investigating accidents that involve threats to public safety arising from accidents involving hazardous materials, or when the release of hazardous materials causes death, serious injury, or major disruption within communities. In addition, the Safety Board investigates accidents involving the transportation of hazardous materials to provide further evidence of the need for implementing previously identified safety improvements. As a result of its investigations, safety recommendations are made to reduce the risk of similar accidents causing the release of hazardous materials and catastrophic consequences.

There were 9,294 hazardous materials incidents reported to the DOT's Research and Special Programs Administration in 1992, including 7,740 highway, 1,128 rail, 420 air, and six water incidents. These incidents resulted in sixteen fatalities, 587 injuries and $30.6 million in damages. In the ten-year period from 1983 to 1992, 111 fatalities, 3,297 injuries and over $238 million in damages were reported. For the five-year period, between 1985 through 1989, 106,011 people were evacuated because of railroad accidents alone, involving hazardous materials.

Because of the limited resources available in Hazardous Materials Division, only two to three major accident investigations and five to eight limited investigations can be conducted annually.

National Transportation Safety Board
Washington, D.C. 20594

43,554 Transportation Fatalities in 1991



Notes: (1) All figures are preliminary estimates,

(2) Grade crossing fatalities were counted in rail and highway modes,

(3) The U.S Coast Guard did not provide commercial marine data, and

(4) The Federal Transit Administration did not provide rail rapid transit data

ACCIDENT SELECTION CRITERIA

The Board investigates aviation, railroad, highway, marine, pipeline, and hazardous materials accidents. Under its accident selection criteria, the Board's investigative response will depend primarily on the following factors: 1) the need for independent investigative oversight of certain specified areas to ensure public confidence in the transportation system; 2) the need to concentrate attention and resources on the most significant and life-threatening safety issues; and 3) the need to maintain an adequate data base on which trends can be identified and projected.

Aviation

1. Oversight/public confidence:

   a. All Part 121 and 135 accidents (includes: commercial passenger service, newly-formed airlines, FAA surveillance of air carrier operations and maintenance activities, and Part 135 operators with multiple accident histories).
   b. Foreign aircraft accidents involving U.S. airlines; U.S.-manufactured transport aircraft; or major U.S.-manufactured components (e.g.,engines) on transport aircraft.
   c. Accidents involving air traffic control.
   d. Accidents involving flight training or crew experience as potential factors.
   e. Midair collision accidents.
   f. Accidents involving newly-certificated aircraft (first accident or less than 10 years old).
   g. Accidents involving newly-certificated engines.
   h. Accidents involving in-flight fire.
   i. Accidents involving in-flight breakup.
   j. Accidents that expose the public to high risk, involve substantial property damage, or attract high public interest.

2. Selected emphasis areas:

   a. General aviation accidents with elements common to Part 121/135 operations (e.g., aircraft typically used in Part 121/135 operations; Part 121/135 training flights, etc.).
   b. All fatal general aviation accidents.[1]

---

[1] The Safety Board, through a letter of agreement with the FAA, delegates the investigation of all agricultural, home-built, and experimental category aircraft accidents to the FAA. However, for those cases in which the FAA does not accept a delegated accident, the Safety Board must perform the investigation. Additionally, other categories of Part 91 fatal aircraft accidents, with no apparent safety improvement potential may be delegated to the FAA.

   c. Commercial passenger flight incidents with safety improvement potential.
   d. Air traffic control incidents with safety improvement potential.
   e. Aging transport aircraft accidents.

3. Statistical needs: All general aviation accidents, except those delegated to the FAA per the letter of agreement.

Railroad

1. Oversight/public confidence:

   a. Commercial passenger services, including rail rapid transit accidents, which result in:
      -- a passenger fatality or serious injury to two or more persons;
      -- an onboard fire with evacuation of passengers;
      -- property damage of $50,000 or more; or
      -- collisions with on-track equipment.
   b. All accidents which involve an employee fatality or serious injury to two or more persons or result in damage of $500,000 or more to railroad and non-railroad property.

2. Selected emphasis areas:

   a. Advanced Train Control Systems.
   b. Train Air Brake Testing/Defects/Inspection.
   c. Rail Rapid Transit Systems.
   d. Locomotive Crashworthiness.
   e. Continuous Welded Rail installation/inspection/performance.
   f. Fatigue/Work/Rest Cycle of employees in safety sensitive positions.
   g. Rail/Highway Grade Crossing Active/Passive Warning systems.
   h. Commuter Cab Control Car Crashworthiness.

Highway

1. Oversight/public confidence:

   a. Highway bridge safety (structurally deficient and functionally obsolete bridges).
   b. Motor carrier oversight by Federal and State agencies.
   c. Transportation of school children.
   d. Intercity bus safety.

2. Selected emphasis areas:

   a. Adequacy of passive restraints.
   b. Air brake performance of heavy trucks.
   c. Training and licensing of intercity bus drivers.
   d. Highway/Railroad grade crossing accidents involving commercial, school, or public transportation vehicles.

e. Limited visibility accidents.
f. Driver fatigue in commercial vehicle accidents.
g. Elderly driver safety.

Marine

1. Oversight/public confidence:

   a. Loss of six or more lives.
   b. Loss of a self-propelled vessel of over 100 gross tons or damage to any vessel exceeding $500,000.
   c. Serious hazardous materials threat to life, property, and environment.
   d. Coast Guard safety functions (e.g., Vessel Traffic Services, search and rescue operations, vessel inspections, aid to navigation positioning/lighting, etc.)
   e. A public and non-public vessel collision or other accident with one or more fatalities or $75,000 or more in property damage.

2. Selected emphasis areas:

   a. Large passenger vessels including ocean cruise ships and excursion vessels, ferries, and harbor excursion boats.
   b. Small passenger vessels carrying more than six passengers.
   c. Liftboats.
   d. Tankships and tank barges.
   e. Fatigue and hours of service on all vessels.
   f. Bridge Resource Management.
   g. Ship maneuvering capabilities in restricted waters.
   h. Collisions and groundings involving oceangoing vessels.

Pipeline

1. Oversight/public confidence:

   a. One or more fatalities.
   b. Damage exceeding $500,000.
   c. Extensive release of highly volatile liquids.

2. Selected emphasis areas:

   a. Accidents where consequences could have been reduce by use of an excess flow valve.
   b. Failure of aging pipe systems.
   c. Accidents involving human performance issues.
   d. Accidents involving recognition or response delays.
   e. Major environmental damages resulting from product release.

Hazardous Materials

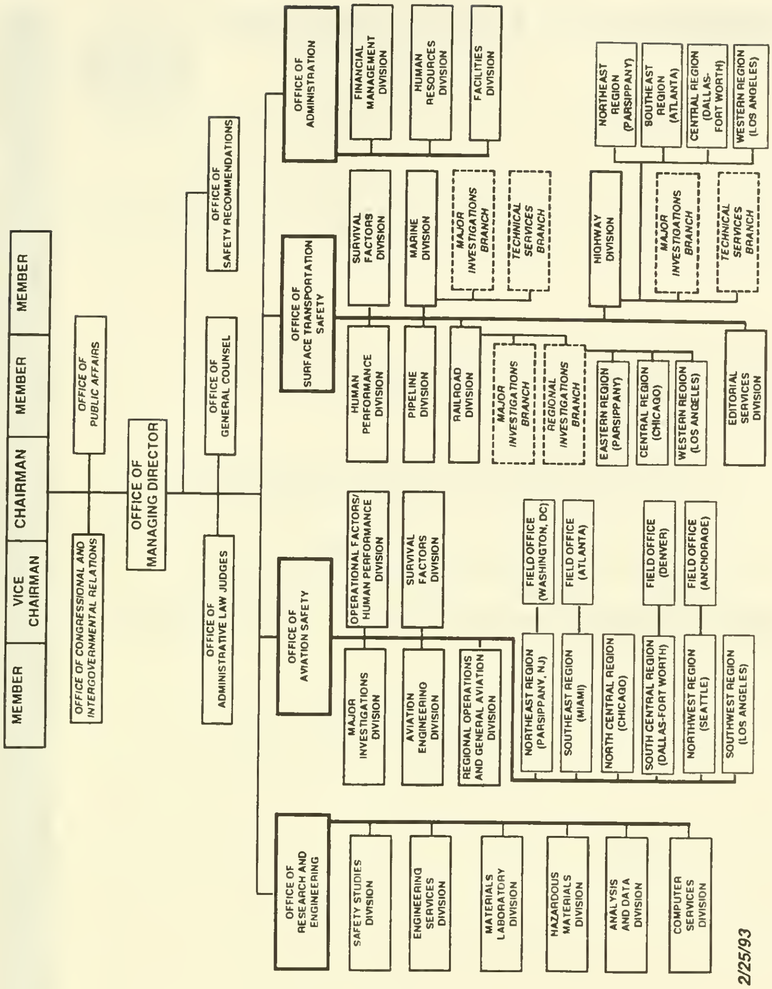
1. Oversight/public confidence:

    a. Fatalities or serious injuries by the release of hazardous materials.
    b. Major evacuations of the public or major disruptions to a community's normal functioning due to the threats caused by a release of hazardous materials.

2. Selected emphasis areas:

    a. Non-collision container failures.
    b. Failure of containers under accident conditions in which the containers reasonably should have been expected to survive.
    c. Cargo transfer operations.
    d. Unusual or unexpected behavior of hazardous materials.
    e. Mis-identified or non-identified hazardous materials.
    f. Emergency response difficulties because of the unexpected behavior of hazardous materials involved in an accident or the lack of adequate information about cargo or containers involved in an accident.

NATIONAL TRANSPORTATION SAFETY BOARD


MEMBER
VICE CHAIRMAN
CHAIRMAN
MEMBER
MEMBER
OFFICE OF CONGRESSIONAL AND INTERGOVERNMENTAL RELATIONS
OFFICE OF PUBLIC AFFAIRS
OFFICE OF MANAGING DIRECTOR
OFFICE OF ADMINISTRATIVE LAW JUDGES
OFFICE OF GENERAL COUNSEL
OFFICE OF SAFETY RECOMMENDATIONS
OFFICE OF RESEARCH AND ENGINEERING
SAFETY STUDIES DIVISION
ENGINEERING SERVICES DIVISION
MATERIALS LABORATORY DIVISION
HAZARDOUS MATERIALS DIVISION
ANALYSIS AND DATA DIVISION
COMPUTER SERVICES DIVISION
OFFICE OF AVIATION SAFETY
MAJOR INVESTIGATIONS DIVISION
AVIATION ENGINEERING DIVISION
REGIONAL OPERATIONS AND GENERAL AVIATION DIVISION
OPERATIONAL FACTORS/HUMAN PERFORMANCE DIVISION
SURVIVAL FACTORS DIVISION
NORTHEAST REGION (PARSIPPANY, NJ)
SOUTHEAST REGION (MIAMI)
NORTH CENTRAL REGION (CHICAGO)
SOUTH CENTRAL REGION (DALLAS-FORT WORTH)
NORTHWEST REGION (SEATTLE)
SOUTHWEST REGION (LOS ANGELES)
FIELD OFFICE (WASHINGTON, DC)
FIELD OFFICE (ATLANTA)
FIELD OFFICE (DENVER)
FIELD OFFICE (ANCHORAGE)
OFFICE OF SURFACE TRANSPORTATION SAFETY
HUMAN PERFORMANCE DIVISION
PIPELINE DIVISION
RAILROAD DIVISION
MAJOR INVESTIGATIONS BRANCH
REGIONAL INVESTIGATIONS BRANCH
EASTERN REGION (PARSIPPANY)
CENTRAL REGION (CHICAGO)
WESTERN REGION (LOS ANGELES)
EDITORIAL SERVICES DIVISION
SURVIVAL FACTORS DIVISION
MARINE DIVISION
MAJOR INVESTIGATIONS BRANCH
TECHNICAL SERVICES BRANCH
HIGHWAY DIVISION
MAJOR INVESTIGATIONS BRANCH
TECHNICAL SERVICES BRANCH
NORTHEAST REGION (PARSIPPANY)
SOUTHEAST REGION (ATLANTA)
CENTRAL REGION (DALLAS-FORT WORTH)
WESTERN REGION (LOS ANGELES)
OFFICE OF ADMINISTRATION
FINANCIAL MANAGEMENT DIVISION
HUMAN RESOURCES DIVISION
FACILITIES DIVISION
2/25/93

PANAMA CANAL COMMISSION

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JUSTIFICATION OF PROGRAMS AND ESTIMATES FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1994

•

1994

PANAMA CANAL COMMISSION
SUMMARY STATEMENTS AND BUDGET APPENDIX SCHEDULES AND JUSTIFICATIONS
Fiscal Year Ending September 30, 1994

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PANAMA CANAL COMMISSION

Summary Statement

Introduction

1. The budget programs for fiscal year 1994 presented here represent the operating and capital requirements of the Panama Canal Commission for the operation and maintenance of the Panama Canal in accord with the Panama Canal Treaty of 1977, and its implementing legislation, the Panama Canal Act of 1979.

2. The Panama Canal Commission is an agency of the United States Government operating by authority of the Congress of the United States with funds provided for those purposes authorized. The Commission has a nine-member supervisory board, an Administrator, and a Deputy Administrator, all of whom are appointed by the President of the United States. Five members of the board are United States citizens and four members, Panamanian citizens. The U. S. majority on the Board will continue to the year 2000. Five board members, of whom at least three are U. S. nationals, constitute a quorum for the conduct of business. Effective January 1, 1990, under the terms of the Treaty, the Administrator is a Panamanian national and the Deputy Administrator, a U. S. citizen.

Operations

3. Total operating costs including depreciation and interest in 1994 are estimated at $541.6 million. This amount includes payments to Panama totaling $90.5 million, comprising net tonnage payments of $70.5 million, a fixed annuity of $10.0 million, and payments for public services of $10.0 million. There is no provision in the fiscal year 1994 budget to pay Panama the contingency payment identified under paragraph 4(c) of Article XIII of the Treaty. Other major cost components in the total of $541.6

million are the reimbursement to the Civil Service Retirement Fund for cost of early retirement benefits provided Commission employees ($15.1 million) and the interest on the net direct investment of the United States in the Canal ($12.0 million).

4. The Commission's total income in 1994 is estimated at $558.1 million, consisting of $417.0 million in tolls revenue and $141.1 million of other revenues derived from miscellaneous services provided transiting vessels, the Republic of Panama, other U.S. Government agencies operating in Panama, Commission employees, and others eligible for services under the terms of the Treaty.

5. The fiscal year 1994 estimates reflect the policy to identify part of the tolls revenue as a contribution to capital based on the difference between the total amount required for the capital program and working capital and collections for depreciation and other items. The amount identified for this purpose in 1994 is $16.5 million, which results in a net of $541.6 million available for operations.

Capital Outlay

6. Panama Canal Commission obligations for new capital projects and equipment acquisitions in 1994 are projected at $38.8 million. Included in the 1994 program is the continuation of the Gaillard Cut widening/straightening program, procurement of a craneboat to replace the ATLAS, procurement of a damming device, replacement of locks power feed cables, replacement of miscellaneous floating equipment and replacement and improvements to transit facilities.

PANAMA CANAL COMMISSION
Program and Performance

The Panama Canal Treaty of 1977 designated the Panama Canal Commission as the successor agency to the Panama Canal Company and Canal Zone Government which ceased to operate in Panama on October 1, 1979. The primary purpose of the Panama Canal Commission is to operate and maintain the interoceanic waterway. The Commission is expected to be financially self-sufficient in its operations and to make payments to the Republic of Panama as specified in the Treaty of 1977. The following budget programs reflect operations of the Panama Canal Commission for fiscal years 1992, 1993, and 1994.

1. Transit Operations - The services included in this activity are:

	1992 Actual	1993 Estimate	1994 Estimate
	(Dollars in thousands)		
Maintenance of channels, dams and spillways .	$51,182	$51,187	$54,659
Navigation service and control	87,591	92,503	96,826
Lock operations and maintenance	55,657	58,724	60,778
General repair, engineering and maintenance services	26,684	26,841	27,577
Fire and facility protection services	14,815	14,362	14,860
Public services payment to Panama	10,000	10,000	10,000
Annuity payment to Panama	10,000	10,000	10,000
Net-tons-transited payment to Panama	66,563	68,940	70,488
General canal expense	22,258	21,321	22,037
Total transit operations	$344,750	$353,878	$367,225

Payments to Panama include $10 million for certain public services to be provided by Panama, a fixed annuity of $10 million, and an annuity based on Panama Canal net tonnage transiting the canal. These payments are prescribed in paragraph 5 of Article III and paragraphs 4(a) and 4(b) of Article XIII of the Panama Canal Treaty of 1977.

Vessel traffic volume and tolls revenue estimates are as follows:

	1992 Actual	1993 Estimate	1994 Estimate
Ocean-going transits (over 300 Panama Canal net tons)	12,636	12,425	12,650
Total Panama Canal net tons	190,180	191,500	195,800
Over 100 feet beam (ocean-going transits)	3,012	3,075	3,200
Tolls (dollars in thousands)	$368,663	$408,000[1]	$417,000[1]

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[1] Includes the effect of 9.9% toll rate increase effective October 1, 1992 (FY 1993).

PANAMA CANAL COMMISSION
Program and Performance

Transit Operations (Cont'd)

Capital obligations for 1994 include the following major projects: $4.3 million for purchase and installation of a damming device; $7.0 million for replacement of the craneboat ATLAS; $9.6 million for the Gaillard Cut widening/straightening program; and $3.3 million to improve transit facilities.

2. Supporting services - The services performed by these support activities are:

	1992 Actual	1993 Estimate	1994 Estimate
	(Dollars in thousands)		
Supply and logistical services	$22,512	$23,928	$24,902
Utilities	40,665	41,038	41,005
Other supporting services	12,835	13,158	13,638
Total supporting services	$76,012	$78,124	$79,545

Capital obligations for fiscal year 1994 include improvements to the electrical power and communication systems of $.5 million; improvements to water systems for $.1 million and replacement of motor vehicles which have exceeded their GSA service life totaling $2.5 million.

3. Administrative expenses (under Congressional limitation) - This category includes expenses for overall direction and administration of the Commission. It also includes employment costs such as the Federal employees health benefits and life insurance programs, reimbursements for health and education services provided to employees and dependents at Department of Defense facilities, and other statutory employment costs.

4. General expenses (not under Congressional limitation) - This category includes the amortization of early retirement benefits pursuant to the Treaty; interest expense on the U. S. Government's net direct investment in the Panama Canal; and other general expenses such as the personnel development program; compensation benefits for work injuries under the Federal Employees Compensation Act (FECA); alien cash relief payments and related costs; incentive awards; and other miscellaneous costs.

5. Financing - The Commission may borrow from the Treasury, amounts not exceeding $100 million outstanding at any time. This authorization is utilized to backstop the Commission's obligations, no actual cash withdrawals against it have been made or are planned in 1994. With the total borrowing authority utilized as a resource, the Commission's unobligated balance at September 30, 1994 is estimated at $95.1 million.

PANAMA CANAL COMMISSION
Program and Financing

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Program by Activities:			
Operating expenses:			
1. Transit operations	$318,813	$333,677	$349,142
2. Suporting operations	70,126	67,051	72,784
3. Administrative expenses	47,800	50,058	51,742
4. Interest expenses	11,499	12,000	12,000
5. Special retirement costs	15,144	15,144	15,144
6. Other general	19,031	20,262	19,527
7. Contingency payment to Panama	875	...	...
Total operating expenses	483,288	498,192	520,339
Capital investment:			
1. Transit operation projects	25,972	25,078	30,900
2. General support projects	4,107	5,943	5,013
3. Utilities projects	6,347	6,979	2,887
4. Accomplishment of prior year slippage	...	4,373	4,739
5. Unanticipated delays/slippage	...	-4,739	-4,867
Total capital investment	36,426	37,634	38,672
Total obligations	519,714	535,826	559,011
Financing:			
Recovery of prior year obligations (-)	-882	...	...
Balance of authority to borrow withdawn	...	8,733	...
Budget authority (gross)	$518,832	$544,559	$559,011
Budget Authority:			
Authority to borrow (Indefinite, P.L. 100-203).	$12,210	$ ...	$827
Spending authority from offsetting collections (new)	$506,622	$544,559	$558,184
Relation of obligations to outlays:			
Total Obligations	$519,714	$535,826	$559,011
Obligated balance, start of year:			
Authority to borrow	567	12,777	4,044
Fund balance	125,890	123,209	129,189
Obligated balance, end of year (-):			
Authority to borrow	-12,777	-4,044	-4,871
Fund balance	-123,209	-129,189	-131,740
Adjustments in unexpired accounts (-)	-882	...	...
Outlays (gross)	$509,303	$538,579	$555,633
Adjustment to budget authority and outlays:			
Deductions for offsetting collections:			
Non-Federal sources (-)	$-506,622	$-544,559	$-558,184
Budget authority (net)	12,210	...	827
Outlays (net)	$2,681	$-5,980	$-2,551

Note: Authority to borrow is available to the Panama Canal Commission on a permanent indefinite basis. This authority is limited only in that the amount of borrowing outstanding at any time cannot exceed $100 million.

PANAMA CANAL COMMISSION
Revenue and Expense

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Revenues:			
Transit operations	$461,102	$501,082	$514,521
Supporting services	45,147	42,897	43,059
Other general expenses	1,327	480	504
Total	507,576	544,459	558,084
Less contribution for:			
Capital expenditures	...	-13,000	-14,500
Working capital	-2,000	-2,000	-2,000
Total operating revenues	505,576	529,459	541,584
Expenses:			
Transit operations	344,750	353,878	367,225
Supporting services	76,012	78,124	79,545
Administrative expense under limitation	47,745	50,258	51,742
General expense not under limitation	40,638	43,630	43,072
Total operating expenses	509,145	525,890	541,584
Recovery of prior years' loss	...	-3,569	...
Operating margin or cost (-)	$-3,569	$ ...	$ ...

Detail of Offsetting Collections

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating Revenues from:			
Tolls	$368,663	$408,000	$417,000
Capital advance	...	-13,000	-14,500
Working capital	-2,000	-2,000	-2,000
Navigation services	86,304	87,232	91,620
Utilities services	44,097	41,968	42,104
Fire protection services	4,517	4,479	4,798
All other operating revenues	3,995	2,780	2,562
Total operating revenues	505,576	529,459	541,584
Operating Revenues from:			
Capital advance	...	13,000	14,500
Working capital	2,000	2,000	2,000
Sale of fixed assets	95	100	100
All other	-1,049	...	...
Total other collections	1,046	15,100	16,600
Total offsetting collections	$506,622	$544,559	$558,184

PANAMA CANAL COMMISSION
Statement of Financial Condition

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Assets:			
Fund balance with treasury	$124,542	$130,189	$132,740
Accounts Receivable:			
Federal Agencies	2,829	2,943	3,044
Public	6,738	7,011	7,104
Subtotal, accounts receivable	9,567	9,954	10,148
Advances and prepayments	236	200	200
Inventories:			
Operating consumables	32,187	31,037	32,588
Property, plant & equipment:			
Structures, facilities and improvements	714,851	736,603	759,225
ADP software	402	402	402
Equipment	286,519	304,318	318,782
Construction-in-progress	14,677	16,581	16,776
Land	21,678	21,678	21,678
Allowance (-)	-548,905	-577,660	-606,985
Sub-total, property, plant and equipment.	489,222	501,922	509,878
Other assets	168,596	141,783	117,525
Total Assests	$824,350	$815,085	$803,079
Liabilities:			
Accounts Payable:			
Federal Agencies	$2,134	$1,979	$2,038
Public	37,355	39,230	36,498
Subtotal accounts payable	39,489	41,209	38,536
Accrued payroll and benefits	7,602	5,416	5,498
Accrued annual leave	54,257	59,310	64,378
Deposit funds	1,333	1,000	1,000
Actuarial liabilities:			
Insurance and annuity programs	171,520	147,661	123,305
Other liabilities	77,898	88,238	98,111
Total liabilities	$352,099	$342,834	$330,828
Equity:			
Revolving fund:			
Cummulative results	$472,251	$472,251	$472,251
Total equity	$472,251	$472,251	$472,251
Total liabilities and equity	$824,350	$815,085	$803,079

PANAMA CANAL COMMISSION
CONVERSION TO THE METRIC SYSTEM
PUBLIC LAW 100-418

The Panama Canal Commission has designated an Ad Hoc Committee to oversee the metric conversion effort, and they in turn have established a Working Group to accomplish the various tasks. As a part of the Working Group's initial assessment effort, a survey of all Commission activities has been performed to identify the databases that are subject to conversion. Presently, efforts are underway to develop plans scheduling conversion for those databases which meet the economic and feasibility criteria. At this time, it is expected that the basic plan will be in place by the end of the fiscal year.

PANAMA CANAL COMMISSION
Tolls and Traffic Projections

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Tolls Income			
Ocean-going (over 300 Panama Canal net tons).	$368,507	$407,855	$416,855
Small craft	156	145	145
Total tolls revenue	$368,663	$408,000	$417,000
Traffic (number of transits)			
Ocean-going:			
Commercial	12,454	12,260	12,485
United States Government	167	150	150
Free	15	15	15
Total ocean-going transits	12,636	12,425	12,650
Small craft	1,512	1,300	1,300
Total number of transits	14,148	13,725	13,950
Average number ocean-going transits per day ...	34.5	34.0	34.7
Panama Canal Commission net tons (in thousands)			
Ocean-going	190,091	191,430	195,730
Small craft	89	70	70
Total net tons	190,180	191,500	195,800
Toll rate (in dollars)			
Laden rate per PC net ton	$2.01	$2.21	$2.21

PANAMA CANAL COMMISSION
Ocean-going Transits - Distribution by Beam

Fiscal Year	Total Ocean-going Transits	Less than 80'		More than 80'		More than 100'	
		No. of Trnsts	% of Total	No. of Trnsts	% of Total	No. of Trnsts	% of Total
1980	13614	7525	55.3%	6089	44.7%	2172	16.0%
1981	13984	7620	54.5%	6364	45.5%	2263	16.2%
1982	14142	6916	48.9%	7226	51.1%	2681	19.0%
1983	11846	5977	50.5%	5869	49.5%	2371	20.0%
1984	11384	5888	51.7%	5496	48.3%	2170	19.1%
1985	11654	6140	52.7%	5514	47.3%	2382	20.4%
1986	12023	6125	50.9%	5898	49.1%	2627	21.8%
1987	12313	6405	52.0%	5908	48.0%	2668	21.7%
1988	12318	6291	51.1%	6027	48.9%	2894	23.5%
1989	12075	6341	52.5%	5734	47.5%	2765	22.9%
1990	12052	6507	54.0%	5545	46.0%	2746	22.8%
1991	12763	6938	54.4%	5825	45.6%	2947	23.1%
1992	12636	6941	54.9%	5695	45.1%	3012	23.8%
1993 Estimate	12425	6900	55.5%	5525	44.5%	3075	24.7%
1994 Estimate	12650	7025	55.5%	5625	44.5%	3200	25.3%

PANAMA CANAL COMMISSION
Summary
Tolls Receipts, Operating Results and Personnel Requirements

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
I. Tolls Receipts			
Tolls	$368,663	$408,000	$417,000
Less contribution for:			
Capital expenditures	...	-13,000	-14,500
Working capital	-2,000	-2,000	-2,000
Net tolls revenue	$366,663	$393,000	$400,500
II. Operating Results			
Net tolls revenue	$366,663	$393,000	$400,500
Other revenues	138,913	136,459	141,084
Total operating revenues	505,576	529,459	541,584
Expenses:			
Transit operations	344,750	353,878	367,225
Supporting services	76,012	78,124	79,545
Administrative and general	47,745	50,258	51,742
Cost of early retirement benefits	15,144	15,144	15,144
Interest	11,492	12,000	12,000
Other general expenses	14,002	16,486	15,928
Total operating expenses	509,145	525,890	541,584
Subtotal	-3,569	3,569	...
Recovery of prior year loss	...	-3,569	...
Net	$-3,569	$ ...	$ ...
III. Personnel Requirements (Total basic workyears)			
Transit operations	6,580	6,700	6,740
Supporting services	1,214	1,199	1,206
Administrative and general	775	804	804
Total	8,569	8,703	8,750

PANAMA CANAL COMMISSION
Other Revenues

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Transit reservation fees	$13,800	$11,500	$12,000
Navigation service and control:			
Harbor pilotage	3,201	2,851	2,951
Handling ship's lines	28,905	30,369	32,526
Tug and launch services	40,113	42,220	43,834
Other	285	292	309
Power system	29,675	28,000	28,103
Water system	12,357	12,015	12,015
All other revenues	10,577	9,212	9,346
Total other revenues	$138,913	$136,459	$141,084

PANAMA CANAL COMMISSION
Summary of Operating Expenses by Program

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Transit Operations			
Maintenance of channels, dams and spillways	$51,182	$51,187	$54,659
Navigation services and control	87,591	92,503	96,826
Locks operations and maintenance	55,657	58,724	60,778
General repair, engineering and maintenance	26,684	26,841	27,577
Fire and facility protection	14,815	14,362	14,860
General canal expense	108,821	110,261	112,525
Total transit operations	344,750	353,878	367,225
Supporting Services			
Logistical services	10,101	10,937	11,530
Motor transportation	12,411	12,991	13,372
Power system	19,317	19,805	18,711
Communications system	11,345	11,238	11,978
Water system	8,363	8,454	8,681
Central chilled water system	1,640	1,541	1,635
General support services	12,835	13,158	13,638
Total supporting services	76,012	78,124	79,545
Administrative and General			
Under Congressional Limitation:			
Executive direction	11,470	12,918	13,508
Operations direction	1,973	2,232	2,351
Financial management	14,342	15,274	16,015
Personnel administration	4,345	4,644	4,869
Employment costs	15,615	15,190	14,999
Total under limitation	47,745	50,258	51,742
Not Under Congressional Limitation:			
Cost of early retirement benefits	15,144	15,144	15,144
Interest	11,492	12,000	12,000
Other general expenses	14,002	16,486	15,928
Total administrative and general	88,383	93,888	94,814
Total operating expenses	$509,145	$525,890	$541,584

PANAMA CANAL COMMISSION
Summary of Operating Expenses by Major Classification

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Payroll and related costs	$276,602	$286,168	$298,140
Supplies and materials	50,695	50,477	53,585
Treaty payments to Panama	86,563	88,940	90,488
Cost of early retirement benefits	15,144	15,144	15,144
Interest on U.S. Government investment	11,492	12,000	12,000
Other direct expense	43,578	51,076	51,593
Depreciation	27,535	24,364	25,156
Accruals and other costs	20,783	20,116	20,566
Deduct: credit for capital work	-3,145	-2,811	-2,816
credit for reserves	-20,102	-19,584	-22,272
Total operating expenses	$509,145	$525,890	$541,584

PANAMA CANAL COMMISSION
Transit Operations
Maintenance of Channels, Dams and Spillways

Mission Statement

To maintain proper navigation depth in the channel. It also includes: (1) observation and study of meteorological, hydrographic, and seismologic conditions and (2) operation and maintenance of a wide range of equipment and facilities such as channel lights, beacons, buoys and other navigation aids, the dams and spillways, and other earth works and structures adjacent to the waterway.

This function includes such major activities as:

Dredging operation - Operation of dredges MINDI and CHRISTENSEN, including running maintenance performed by the crews, supplies and materials, and supporting equipment including pipe lines, launch and tug support.

Other support equipment - Operation of the dredging tug and launch fleet, craneboat ATLAS, and the floating cranes HERCULES and GOLIATH.

Drilling and blasting operations - Operation of the drillboat THOR, including explosives, and the land coredrill equipment used for Canal maintenance and improvement, bank stabilization program, and instrumentation of dams and spillways.

Meteorology-hydrography survey - Operation of the Meteorological and Hydrographic Branch, which manages the water resources and performs hydrographic surveys of the Canal to determine dredging requirements. Functions include operation and maintenance of rainfall measurement stations, performance of meteorological forecasts, flood control, and topographic surveys.

Maintenance, repairs and overhaul services - Cost of the major maintenance and overhaul of dredging floating equipment is generally accomplished by the Industrial Division. This also includes the maintenance and repair of the Canal's navigational aids and Dredging Division facilities.

All other - Includes remedial work on slide areas, maintenance of the Atlantic breakwater, bank erosion, maintenance of dams and spillways, oil pollution and debris control, and other projects to ensure the safety and stability of the Canal.

Accrual for overhaul of dredging tugboat fleet - Provides for overhaul and maintenance on the Commission's dredging tugboat fleet. The performance of such work is allocated to operations through an annual provision based on planned overhaul, major maintenance and emergency work.

PANAMA CANAL COMMISSION
Transit Operations
Maintenance of Channels, Dams and Spillways

Operating expenses	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Payroll and related	$22,276	$22,571	$23,213
Fuel	1,433	1,250	1,250
Supplies and materials	3,849	4,148	5,580
Other direct costs	3,918	2,988	4,679
Commission maintenance and power services	8,386	8,635	8,286
Depreciation	10,843	11,145	11,191
Accrual for overhaul of dredging tugboat fleet	479	530	540
Total operating expenses	51,184	51,267	54,739
Operations credit for capital performance	-2	-80	-80
Net operating expenses	51,182	51,187	54,659
Unfunded adjustments to net operating expenses	-10,799	-11,508	-10,542
Change in selected resources	-1,181	18	17
Total operating obligations	$39,202	$39,697	$44,134

Analysis of projected increase/-decrease requirements to operating expenses	FY 1993	FY 1994
Total cost escalation	$1,464	$1,052
Program/workload requirements:		
Payroll and related	-708	109
Supplies and materials	16	1,307
Other direct costs	-937	1,687
Commission maintenance and power services	-105	-739
Depreciation	302	46
Accrual for overhaul of dredging tugboat fleet	51	10
Credits to operations	-78	...
Total program/workload requirements	-1,459	2,420
Projected increase/-decrease to net operating expenses	$5	$3,472

Explanation of program/workload requirements

FY 1992 to FY 1993
The reduction in payroll is mainly due to an overall reduced requirement for personnel support for dredging operations. The increase in supplies is primarily due to drilling and blasting supplies for the Gaillard Cut and spare parts and components for dredge MINDI, partially offset by reduced fuel requirements for dredging operations. Decreased other direct costs are due to completed prior-year dredging repair and maintenance contracts. The change in Commission services reflects repair work to barges, dump scows, crane GOLIATH, drillboat THOR, offset by the completion of dredge MINDI and crane HERCULES overhauls.

FY 1993 to FY 1994
The slight increase in payroll costs is mainly due to promotion of apprentices to journeyman level. The increase in supplies and materials is mostly due to procurements for the dipper and suction dredge operations at Gaillard Cut. Increased other direct costs reflect contract maintenance work on the dredge CHRISTENSEN. The variation in Commission maintenance services reflects overhaul and maintenance and repair of barges, dredge CASCADAS, and craneboat ATLAS, offset by the completion of repairs to crane GOLIATH, dump scows, drillboat THOR, dredge CHRISTENSEN, and Gatun spillway gates.

PANAMA CANAL COMMISSION
Transit Operations
Navigation Service and Control

Mission Statement

To provide safe and efficient transit of vessels through the Canal and in the terminal port areas.

The Navigation Service and Control function is responsible for vessel transits through the Canal, vessel docking, and related services such as tug and launch service, boarding and admeasuring services, traffic control, and linehandling services.

Included in this function are such major activities as:

Transit and port pilotage - Provides pilotage of transiting vessels and vessel movement in and around harbors and piers, administrative and special duty assignments given to pilots, and advisory pilotage furnished by Dredging Division for pilotage of small vessels through the Canal. Also included are other miscellaneous expenses related to pilotage.

Vessel control, admeasurement and dispatch - Includes vessel control and dispatch costs connected with Marine Traffic Control Center, the Ship Data Bank Control Center, and signal station operations. The admeasuring operation provides boarding party services and measurement of the vessel cargo-carrying areas for determination of tolls assessment.

Handling ships' lines - Provides deckhand services including related supervision and clerical personnel; contract bus service to remote work sites; and other general activities associated with handling ships' lines.

Tug and launch operations - Tug operations include services connected with Commission tug operations, Port Engineer and towboat shore stations, tug crews (master, engineers, oilers, seamen leaders, and seamen); operating supplies and materials (fuel, oil, lines and other consumables); and other services related to the operation of tug fleet. Commission launch operations include launch crews and launch dispatchers, related supplies and materials (fuel and other consumables); and other general activities associated with launch services.

Maritime training program - Provides maritime training including related supervision and clerical personnel; personnel services of pilots-in-training and towboat trainees (apprentice mate trainees, mates, assistant engineers and engineer trainees); operating supplies and materials (VHS tapes, textbooks, software programs, and audio-visual aids); and other general expenses directly related to maritime training.

Supervision and general operations - Includes divisional management, administration and general support operations, personnel services, materials and supplies, and other general services associated with the navigation and control function.

Accrual for overhaul of navigation tugboat fleet - Provides for overhaul and maintenance on the Commission's navigation tugboat fleet. The performance of such work is allocated to operations through an annual provision based on planned overhaul, major maintenance and emergency work.

PANAMA CANAL COMMISSION
Transit Operations
Navigation Service and Control

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$73,375	$77,893	$81,769
Fuel	1,957	1,947	2,005
Supplies and materials	2,004	1,733	1,869
Other direct costs	1,163	1,964	1,960
Commission maintenance and power services	2,229	1,865	1,916
Depreciation	2,822	2,725	2,712
Accrual for overhaul navigation tugboat fleet	4,046	4,376	4,595
Total operating expenses	87,596	92,503	96,826
Operations credit for capital performance	-5	...	...
Net operating expenses	87,591	92,503	96,826
Unfunded adjustments to net operating expenses	-2,638	-2,310	-2,188
Change in selected resources	425	110	-152
Total operating obligations	$85,378	$90,303	$94,486

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$3,888	$1,257
Program/workload requirements:		
Payroll and related	844	2,851
Supplies and materials	-384	86
Other direct costs	756	-49
Commission maintenance and power services	-430	-28
Depreciation	-97	-13
Accrual for overhaul navigation tugboat fleet	330	219
Credit to operations	5	
Total program/workload requirements	1,024	3,066
Projected increase/-decrease to operating expenses	$4,912	$4,323

Explanation of program/workload requirements

FY 1992 to FY 1993
The change in payroll and related is mainly due to a reduced level of vacant positions and FY 1992 accounting adjustments. The decrease in supplies and materials is due to reductions in operating supply requirements for tugs, linehandling and launch operations. The increase in other direct expenses is primarily due to rehabilitation, repair and improvements to tug, launch and other navigation facilities. The reduction in Commission maintenance services is primarily due to a reduced level of required maintenance on Commission launches.

FY 1993 to FY 1994
The change in payroll and related is mainly due to the increased marine staffing requirements for the maritime training program and transit linehandling requirements. The increase in supplies and materials is primarily due to procurement of tug replacement parts and linehandling uniforms.

PANAMA CANAL COMMISSION
Transit Operations
Locks Operations and Maintenance

Mission Statement

To provide safe and efficient handling of vessels through the locks; maintain lock structures and appurtenances; and perform periodic major overhauls of the underwater portions of the locks.

Included in this function are such major activities as:

Lockage operations - Included in this activity are personnel associated with handling vessels at the locks (towing-locomotive operators, lockmasters, control house personnel, and boatmen) in coordination with other activities having responsibilities for direction and control of ship movement in the Canal.

Locks maintenance and repairs - Provides for the repairs and maintenance of machinery, equipment and structures at the three sets of locks.

Supervision and general - Management and general operations personnel services cost; supplies and materials; and other general expenses.

Accrual for lock overhauls - The method used for accruing the cost of overhauling the locks is a moving average recognizing differences in the actual and estimated costs as they become known.

Schedule of Overhaul Expenditures

Fiscal Year	Description of work	Expenditure (Dollars in thousands)
1993	Overhaul Gatun miter gates (MGs) 25, 26, 27, and 28; rehabilitate/paint MGs 29, 30, 31, and 32; conversions and repairs to Rising Stem Valves (RSVs) and Cylindrical Valves (CVs)	$8,001
	Preparatory work for FY 1994 overhaul	200
	Repair and overhaul caisson and other miscellaneous work	494
	Purchase, repair and install 2 CVs and 4 RSVs and other miscellaneous work at Pedro Miguel	449
	Miscellaneous maintenance and repairs at Miraflores . . .	129
	Total	$9,273
1994	RSVs and CV overhaul at Gatun. Includes procurement, rehabilitation, reconditioning, and painting	$8,040
	Remove, paint, and rehang MGs 17, 18, 19, 20	1,063
	Preparatory work for FY 1995 overhaul	200
	Repair 4 RSVs and other miscellaneous work at Pedro Miguel	138
	Remove, paint, and rehang MGs 120 and 121 and other miscellaneous work at Miraflores	682
	Repair pumps and other overhaul equipment	454
	Total	$10,577

PANAMA CANAL COMMISSION
Transit Operations
Locks Operations and Maintenance

Operating expenses:	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Payroll and related	$30,921	$31,500	$32,470
Supplies and materials	5,222	6,797	6,684
Other direct costs	1,478	1,959	2,364
Commission maintenance and power services	3,843	4,778	5,186
Depreciation	3,892	3,930	4,046
Accrual for locks overhaul	10,594	9,760	10,028
Total operating expenses	55,950	58,724	60,778
Operations credit for capital performance	-293	...	...
Net operating expenses	55,657	58,724	60,778
Unfunded adjustments to net operating expenses	-4,018	-4,417	-3,497
Change in selected resources	-111	17	351
Total operating obligations	$51,528	$54,324	$57,632

Analysis of projected increase/-decrease requirements to operating expenses	FY 1993	FY 1994
Total cost escalation	$1,833	$1,202
Program/workload requirements:		
Payroll and related	-918	173
Supplies and materials	1,422	-302
Other direct costs	447	370
Commission maintenance and power services	786	227
Depreciation	38	116
Accrual for locks overhaul	-834	268
Credits to operations	293	...
Total program/workload requirements	1,234	852
Projected increase/-decrease to operating expenses	$3,067	$2,054

Explanation of program/workload requirements

FY 1992 to FY 1993
The change in payroll and related is primarily due to a reduction in temporary employments, overtime, and a reduced level of vacant positions. The increase in supplies and materials is mainly attributable to requirements for locks overhaul, and in support of major maintenance projects. The increase in other direct expenses is primarily due to contract services to manufacture a softnose for Miraflores locks. The change in capital performance is due to the completion of work on the Gatun South turntable project.

FY 1993 to FY 1994
The change in payroll and related is mainly due to varying requirements for locks overhaul, partially offset by a reduced level of vacant positions. The decrease in supplies and materials is primarily due to completion of major maintenance projects such as, replacement of locomotive crane cabs and repairs to rubber fenders on the approach wall. The change in other direct expenses is mostly due to the completed manufacture of a softnose for Miraflores locks, partially offset by improvements to the dry rooms and the locks illumination system.

PANAMA CANAL COMMISSION
Transit and Operations
General Repair, Engineering and Maintenance Services

Mission Statement

This activity provides the wide range of maintenance and repair work on structures, floating equipment, and shop and construction equipment necessary for the safe and efficient operation of the total Canal enterprise. Included are related engineering services such as surveys, preparation of designs, cost estimates and specifications for work, and the general supervision and administration of construction work performed for the Commission by private contracting firms.

Included in this function are such major activities as:

General maintenance service - Provides maintenance and improvements to Commission buildings, employee housing, and certain sewer systems; locks rehabilitation work and overhaul support (exclusive of work performed by contract). Includes cost of operating an environmental and testing laboratory in the Water and Laboratories Branch at Miraflores. Functions of the laboratory include tests on construction materials; miscellaneous chemicals and physical analyses; testing of such items as paint, oil, corrosion products, and soils, monitoring salt and fresh water quality; air quality testing; and analysis of oil and industrial hygiene samples.

Vessel repair services - Operation of the repair facility for Commission floating equipment including design, overhaul, and repair; operation of an instrument repair shop; maintain salvage and diving capability; operation of shops for the manufacture and repair of machine parts; operation of tug/locks miter gate repair facilities; performs marine damage surveys; and inspect and certify cranes and elevators.

Electrical maintenance service - Provides electrical maintenance and repair service for all Commission buildings and employee housing including electrical maintenance support to other Commission units as required.

Sanitation and grounds expense - Provides environmental sanitation and grounds care in Canal operating and Commission housing areas. Also included are the operation and maintenance of the sanitary landfill disposal sites, one each on the Atlantic and Pacific sides of the Isthmus.

Engineering services - Provides engineering and architectural designs, estimates, specifications, and pre-contract functions; special engineering studies as required; and annual inspection maintenance program of Commission buildings and structures.

Contract-inspection service - Provides those services necessary for the management of contract construction work for the Commission, including contract formulation and award, quality and safety assurance, construction problem resolutions, contract modification, and payment approval.

PANAMA CANAL COMMISSION
Transit Operations
General Repair, Engineering and Maintenance Services

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$44,963	$45,891	$47,542
Supplies and materials	12,535	12,950	13,515
Other direct costs	1,754	2,219	1,724
Commission maintenance and power services	1,687	1,884	2,039
Depreciation	1,584	1,568	1,624
Total operating expenses	62,523	64,512	66,444
Operations credit for capital performance	-2,483	-2,450	-2,455
Credit for maintenance services to other activities	-33,356	-35,221	-36,412
Net operating expenses	26,684	26,841	27,577
Unfunded adjustments to net operating expenses	-1,584	-1,568	-1,624
Change in selected resources	-300	-225	-100
Total operating obligations	$24,800	$25,048	$25,853

Analysis of projected increase/-decrease requirements to operating expenses

Total cost escalation	$1,251	$98
Program/workload requirements:		
Payroll and related	-1,325	434
Supplies and materials	24	177
Other direct costs	421	-538
Commission maintenance and power services	135	86
Depreciation	-16	56
Credits to operations	-333	423
Total program/workload requirements	-1,094	638
Projected increase/-decrease to operating expenses	$157	$736

Explanation of program/workload requirements

FY 1992 to FY 1993
The variations in payroll, supplies and materials, other direct costs, Commission services, and the offset in operational credits reflect the completion of overhaul work to Caisson No.2, the crane HERCULES and other maintenance requirements throughout the Commission. The remaining offset is primarily due to maintenance of plant and facilities within the maintenance service organizations.

FY 1993 to FY 1994
The variation in payroll and related costs primarily reflects an increase in occupancy of positions due to various maintenance requirements throughout the Commission. The change in other direct costs reflects completion and a reduced requirement for contractual maintenance support for overhauls and other maintenance programs.

PANAMA CANAL COMMISSION
Transit Operations
Fire and Facility Protection

Mission Statement

Provide fire and facility protection services in the Canal operating areas as specified under the Treaty and in accord with joint agreements between the Republic of Panama and the Commission.

Included in this function are such major activities as:

Fire protection - Firefighting and fire protection services throughout Panama Canal Commission areas, defense sites, military areas of coordination, and ships in Canal waters. In most of these areas, firefighting is done in cooperation with the Cuerpo de Bomberos de Panama (Fire Department of Panama).

Facility protection - Protection and security of selected Commission installations which are vital to the operation, management, and maintenance of the Panama Canal.

PANAMA CANAL COMMISSION
Transit Operations
Fire and Facility Protection Services

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$12,834	$13,327	$13,594
Supplies and materials	498	527	541
Other direct costs	123	178	298
Commission maintenance services	215	187	218
Depreciation	105	143	209
Reclassify improvements to fire facilities	1,040	...	...
Total operating expenses	14,815	14,362	14,860
Unfunded adjustments to net operating expenses	-1,145	-143	-209
Change in selected resources	38	-8	-6
Total operating obligations	$13,708	$14,211	$14,645

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$655	$294
Program/workload requirements:		
Payroll and related	-137	...
Supplies and materials	14	-2
Other direct costs	49	116
Commission maintenance services	-32	24
Depreciation	38	66
Reclassify improvements to fire facilities	-1,040	...
Total program/workload requirements	-1,108	204
Projected increase/-decrease to operating expenses	$-453	$498

Explanation of program/workload requirements

FY 1992 to FY 1993
The reduction in payroll is primarily due to reduced overtime requirements in fire protection training. The increase in supplies and materials is mainly due to the purchase of emergency medical services, and fire prevention supplies. The increase in other direct costs is primarily due to purchase of fire equipment, fixtures, canal protection uniforms and maintenance and repair of facilities.

FY 1993 to FY 1994
The increase in other direct costs is mainly due to contract maintenance work for security projects, such as illumination of the perimeter of Cerro Pelado, an explosives storage area, fire exits and visitor control points at the administration building in Balboa Heights.

PANAMA CANAL COMMISSION
Transit Operations
General Canal Expense

Mission Statement

Expenses of supporting transit operations not assignable to individual activities.

Included in this function are such major activities as:

Apprentice and other trainees' salaries - Salaries of 1st and 2nd year apprentices training for craft positions. Also includes salaries of pilot trainees under the Pilot Understudy Program and trainees under the Career Intern and Cooperative Education Programs.

Occupational health and safety - Prevention of occupational diseases and injuries through surveys of industrial operations, as well as, monitoring the health aspects of the Commission's adherence to the Occupational Safety and Health Act of 1970, Public Law 91-596.

Technical resources center - Operation of a technical library which provides professional reference service to the Commission.

Area Coordinators - Responsible for liaison with Government of Panama.

Board of local inspectors - Board operation which includes principally investigations of marine accidents, including accidents in and outside the locks and in the terminal port areas involving Commission personnel and equipment.

Treaty costs - Include payments to Panama pursuant to Articles III and XIII of the Panama Canal Treaty of 1977 and the costs associated with the Treaty-related transfer of housing units to Panama.

Health services provided by DOD - Health services for eligible individuals, their widows and dependents in the following categories: (1) Disability relief annuitants; (2) Civil Service annuitants (U.S. citizens retired before July 1, 1960 and non-U.S. citizens retired before November 1, 1970).

Catastrophe insurance - Insurance coverage to protect against major and unpredictable revenue losses, third party liability, and other expenses arising from catastrophic accidents.

Accrual for marine accidents and casualty losses - Annual accrual for Commission's "self-insurance" for marine accident costs and other casualty losses.

PANAMA CANAL COMMISSION
Transit Operations
General Canal Expense

Operating expenses:	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Payroll and related:			
Apprentice and other trainees' salaries	$2,875	$3,222	$3,919
Occupational health and safety	2,937	3,167	3,230
Technical resources center	476	483	493
Area coordinators	383	407	415
Board of local inspectors	320	365	373
Other payroll and related	16	36	45
Supplies and materials	183	153	157
Other direct costs:			
Treaty derived costs			
Payment to Panama for public services	10,000	10,000	10,000
Fixed annuity payment to Panama	10,000	10,000	10,000
Panama Canal net-tons transiting payment to Panama	66,563	68,940	70,488
Health services provided by DOD	2,217	3,426	3,455
Catastrophe insurance	2,866	3,378	3,385
Other	824	947	768
Commission maintenance and power services	1,108	705	765
Depreciation	3,866	882	882
Accrual for marine accidents and other casualty losses	4,187	4,150	4,150
Total operating expenses	108,821	110,261	112,525
Unfunded adjustments to net operating expenses	-3,865	-179	-145
Change in selected resources	116	12	12
Total operating obligations	$105,072	$110,094	$112,392

Analysis of projected increase/-decrease requirements to operating expenses

Total cost escalation	$3,156	$496
Program/workload requirements:		
Payroll and related	358	657
Tonnage payments to Panama	475	1,548
Other direct costs	-2,549	-437
Total program/workload requirements	-1,716	1,768
Projected increase/-decrease to operating expenses	$1,440	$2,264

Explanation of program/workload requirements

FY 1992 to FY 1993
The variation in payroll is mainly due to a reduced level of vacant positions in the Commission's training program. Tonnage payments increase is due to a slight increase in traffic. The variation in other direct costs is mostly due to a reduction in DOD health sponsorship due to attrition of those eligible, and an adjustment in the allowance for composite depreciation.

FY 1993 to FY 1994
Payroll and related increase is due to the acceleration of the Commission's training program. Tonnage payments to Panama increase is due to a slight increase in traffic. The decrease in other direct costs is primarily due to a reduction in health services provided by DOD due to attrition of those eligible, and relocation completion of the office of the Board of Local Inspectors.

PANAMA CANAL COMMISSION
Supporting Services
Logistical Services

Mission Statement

This service is comprised of the storehouse operations and provides the required capabilities for the purchasing, warehousing and issuing necessary to assure supply availability for scheduled projects, routine operations, and emergency needs of Commission units. This includes operation of a procurement office in New Orleans; collecting and processing scrap for sale; and public sale of surplus and obsolete equipment and materials.

Included in this function are such major activities as:

Procurement and warehouse operations - Provides for procuring and maintaining an inventory of supplies and materials required for day-to-day operations.

Excess disposal - Provides for the public sale of surplus and obsolete equipment and material.

PANAMA CANAL COMMISSION
Supporting Services
Logistical Services

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$5,335	$5,486	$5,601
Supplies and materials	953	829	877
Other direct costs	2,826	3,019	3,348
Commission maintenance and power services	364	415	511
Depreciation	197	188	193
Allowance for obsolete and excess stock	426	1,000	1,000
Total operating expenses	10,101	10,937	11,530
Unfunded adjustments to net operating expenses	70	-688	-693
Change in selected resources	-787	1,078	1,056
Total operating obligations	$9,384	$11,327	$11,893

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$384	$256
Program/workload requirements:		
Payroll and related	-100	4
Supplies and materials	-162	8
Other direct costs	108	237
Commission maintenance services	41	83
Depreciation	-9	5
Allowance for obsolete and excess stock	574	...
Total program/workload requirements	452	337
Projected increase/-decrease to operating expenses	$836	$593

Explanation of program/workload requirements

FY 1992 to FY 1993
The decrease in payroll is primarily due to reduced requirements for temporary employments. The decrease in supplies and materials is due to a reduced level of required operating supplies for logistical services. Other direct costs variation reflects increased freight services for shipment of commodities. The variation in allowance for obsolete and excess stock reflects an increased provision for the allowance for aged inventory.

FY 1993 to FY 1994
The increase in other direct costs is primarily due to increased requirements for maintenance and repairs contracts.

PANAMA CANAL COMMISSION
Supporting Services
Motor Transportation

Mission Statement

This activity is responsible for the operation and maintenance of a consolidated motor vehicle pool system and facilities in support of Commission operations. Types of vehicles provided, serviced, and repaired include construction, material handling, firefighting, grounds maintenance, heavy equipment, and other miscellaneous vehicles. This activity also provides miscellaneous repair services to other units of the Commission.

Included in this function are such major activities as:

Motor vehicle operations - Provide for the operation of the Motor Transportation Division official vehicles.

Repair shops - Responsible for the operation of shops which provide the repair and servicing of Commission motorized equipment and stationary machinery, and the operation of a tire recapping plant for official vehicles.

Supervision and general - Provides for management and general operations, personnel services and supplies and materials. In addition, this activity includes the cost of maintaining the motor pool facilities by other Commission units.

PANAMA CANAL COMMISSION
Supporting Services
Motor Transportation

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$7,700	$7,978	$8,222
Fuel	441	482	497
Supplies and materials	932	868	894
Other direct costs	206	307	322
Commission maintenance and power services	286	366	343
Depreciation	2,887	3,050	3,154
Total operating expenses	12,452	13,051	13,432
Operations credit for capital performance	-41	-60	-60
Net operating expenses	12,411	12,991	13,372
Unfunded adjustments to net operating expenses	-2,887	-3,050	-3,154
Change in selected resources	117	-30	-15
Total operating obligations	$9,641	$9,911	$10,203

Analysis of projected increase/-decrease requirements to operating expenses		
Total cost escalation	$424	$270
Program/workload requirements:		
Payroll and related	-96	32
Supplies and materials	-62	...
Other direct costs	94	7
Commission maintenance and power services	76	-32
Depreciation	163	104
Credits to operations	-19	...
Total program/workload requirements	156	111
Projected increase/-decrease to operating expenses	$580	$381

Explanation of program/workload requirements

FY 1992 to FY 1993
The decrease in payroll and related cost reflects the abolishment of positions, partially offset by the establishment of trainee positions. The reduction in supplies and materials is due to completed procurements. The increase in other direct costs is due to maintenance contracts on motor transportation facilities.

FY 1993 to FY 1994
The increase in payroll and related cost is principally due to a reduced level of vacant positions, and personnel progressing to the journeyman level.

PANAMA CANAL COMMISSION
Supporting Services
Power System

Mission Statement

The Power System provides for the generation, transmission, and distribution of electricity to the Commission, U. S. Military, and for interchange with the Republic of Panama.

Included in this function are such major activities as:

Power generation - Power generated by both hydroelectric and thermal means by Commission-owned and operated generating plants. Maintenance of generating equipment is also included in this function.

Power transmission and distribution system - Includes power distribution and maintenance of the power distribution system, including transmission lines, transformers, and switching gear for the Canal operating areas. (The U.S. military forces and Government of Panama are responsible for maintaining transmission lines within their respective areas).

Generating stations - The power system consists of two steam turbine generators (one 33 and one 22 megawatts); two 10 megawatt gas turbines; and one 18 megawatt gas turbine. The system also has two hydroelectric plants, with capacities of 36 megawatts at Madden and 24 megawatts at Gatun, which are operated when sufficient water is available.

Supervision and general - Costs associated with the administration of the power system including engineering, administrative and clerical support personnel, and maintenance of buildings and structures under the responsibility of the Power Branch.

PANAMA CANAL COMMISSION
Supporting Services
Power System

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$5,101	$5,034	$5,175
Fuel used for generating power	9,049	8,327	8,785
Supplies and materials	3,563	4,726	3,880
Other direct costs	3,713	3,810	3,105
Commission maintenance services	2,843	2,928	2,878
Depreciation	1,338	1,400	1,438
Total operating expenses	25,607	26,225	25,261
Credit for power services to other activities.	-6,290	-6,420	-6,550
Net operating expenses	19,317	19,805	18,711
Unfunded adjustments to net operating expenses	-1,338	-1,400	-1,438
Change in selected resources	2,606	-3,632	995
Total operating obligations	$20,585	$14,773	$18,268

Analysis of projected increase/-decrease requirements to operating expenses

Total cost escalation	$853	$850
Program/workload requirements:		
Payroll and related	-300	6
Fuel used for generating power	-988	...
Supplies and materials	1,045	-988
Other direct costs	-22	-819
Commission maintenance services	-32	-181
Depreciation	62	38
Credits to operations	-130	...
Total program/workload requirements	-365	-1,944
Projected increase/-decrease to operating expenses	$488	$-1,094

Explanation of program/workload requirements

FY 1992 to FY 1993
The reductions in payroll, other direct and Commission maintenance services are primarily due to completion of prior-year maintenance and repair projects. The variation in fuel reflects a decrease in consumption of diesel. The increase in supplies and materials is mainly due to increased material requirements in support of various maintenance projects.

FY 1993 to FY 1994
The reductions in supplies and materials, other direct costs, and Commission maintenance services are principally attributable to completion of certain maintenance and repair requirements on the Commission's power generating system.

PANAMA CANAL COMMISSION
Supporting Services
Communication System

Mission Statement

The Communication Branch provides full scope telecommunications and electronics services for the Commission; procurement, installation, and maintenance of facilities and equipment; and, where appropriate, operation of systems, such as telephone, microwave, radio paging, data transmission, and other communications systems throughout the Canal areas to support Canal operations.

Included in this function are such major activities as:

Operation and maintenance of telephone systems - Basic telephone service and standard maintenance of central office equipment, outside plant and microwave and related systems. Also provides maintenance services on specialized telephone systems owned and operated by other Commission units.

Operation and maintenance of electronics systems - Maintenance of radio systems, digital systems and electronic equipment in general. Also includes maintenance service on specialized electronic systems owned and operated by other Commission units.

PANAMA CANAL COMMISSION
Supporting Services
Communications System

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$5,113	$5,277	$5,424
Supplies and materials	1,472	1,302	1,460
Other direct costs	1,477	1,623	1,897
Commission maintenance and power services	701	893	921
Depreciation	2,903	2,364	2,497
Total operating expenses	11,666	11,459	12,199
Credit for capital performance	-321	-221	-221
Net operating expenses	11,345	11,238	11,978
Unfunded adjustments to net operating expenses	-2,903	-2,364	-2,497
Change in selected resources	66	9	3
Total operating obligations	$8,508	$8,883	$9,484

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$344	$236
Program/workload requirements:		
Payroll and related	-89	16
Supplies and materials	-212	119
Other direct costs	129	245
Commission maintenance and power services	160	-9
Depreciation	-539	133
Credit for capital performance	100	...
Total program/workload requirements	-451	504
Projected increase/-decrease to operating expenses	$-107	$740

Explanation of program/workload requirements

FY 1992 to FY 1993
The variations in payroll, Commission services and credit for capital performance are mainly due to maintenance projects such as the installation of a communication radio system at Commission sites. The decrease in supplies and materials is mainly due to completion of Trans-Isthmian fiber optic cable for U.S. military.
The increase in other direct costs is primarily due to upgrading communication services provided to the U.S. Military on a reimbursable basis and the purchase of communication equipment.

FY 1993 to FY 1994
Increased supplies and material reflect mainly the purchase of telephone switching, LAN, and data network repair parts. The increase in other direct costs is primarily due to increased contractual services to support improvements and maintenance of the Commission's telephone and electronic systems.

PANAMA CANAL COMMISSION
Supporting Services
Water System

Mission Statement

The water system consists of two principal units, one serving the Pacific side of the Isthmus, including certain areas of Panama City, and the other serving the Atlantic side, including the city of Colon. Raw water is pumped to filtration plants where it is filtered, treated, and then distributed to Canal and military operating areas and Panama.

Included in this function are such major activities as:

Pumping operations - Cost of operating and maintaining water pumping equipment located at various pump stations throughout the Canal operating area, i.e., Balboa, Gamboa, Los Rios, Miraflores and Paraiso.

Filtration operations - Cost of operating and maintaining the two water filtration plants located at Miraflores and Mt. Hope.

Reservoir and water line maintenance - Cost of maintaining water reservoirs and distribution lines.

Miscellaneous operations and maintenance - Cost of maintaining water system equipment and water meters.

Supervision and general - Cost of administering the water system including sanitary engineering, administrative, and clerical support personnel.

PANAMA CANAL COMMISSION
Supporting Services
Water System

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$2,275	$2,495	$2,748
Supplies and materials	1,739	1,587	1,573
Other direct costs	149	399	417
Commission maintenance services	1,574	1,279	1,189
Commission power services	2,194	2,285	2,331
Depreciation	432	409	423
Total operating expenses	8,363	8,454	8,681
Unfunded adjustments to net operating expenses	-432	-409	-423
Change in selected resources	46	-15	-20
Total operating obligations	$7,977	$8,030	$8,238

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$252	$187
Program/workload requirements:		
Payroll and related	103	183
Supplies and materials	-209	-62
Other direct costs	236	6
Commission maintenance services	-268	-101
Depreciation	-23	14
Total program/workload requirements	-161	40
Projected increase/-decrease to operating expenses	$91	$227

Explanation of program/workload requirements

FY 1992 to FY 1993
The increase in payroll and related cost is due to a reduced level of vacant positions. The variations in supplies and materials, other direct costs and Commission maintenance services are due to maintenance projects to the water system and its facilities.

FY 1993 to FY 1994
The increase in payroll costs is principally due to a reduction in vacant positions within the water system. The decrease in Commission maintenance services is due to reduced requirements associated with the completion of electrical and maintenance projects to the water system.

PANAMA CANAL COMMISSION
Supporting Services
Central Chilled Water System

Mission Statement

Provides for the operation and maintenance of a central chilled water production plant for air conditioning of certain buildings in the Balboa and Ancon areas.

This operation consists of a chilled water pumping and cooling plant in the Balboa area which chills and distributes water to users by means of insulated pipes. Two loops of insulated pipes are used, one carrying chilled water to the buildings in the Ancon area and the second serving the Balboa area. The buildings served provide the necessary air distribution systems, heat exchange equipment, and humidity controls. The Commission provides air conditioning service, on a reimbursable basis, for connected buildings transferred to the Government of Panama and other U.S. Government agencies.

PANAMA CANAL COMMISSION
Supporting Services
Central Chilled Water System

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Other direct costs	$45	...	$25
Commission maintenance services	780	723	777
Commission power services	750	756	771
Depreciation	65	62	62
Total operating expenses	1,640	1,541	1,635
Unfunded adjustments to net operating expenses	-65	-62	-62
Change in selected resources	-30	...	...
Total operating obligations	$1,545	$1,479	$1,573

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$31	$48
Program/workload requirements:		
Other direct costs	-45	25
Commission maintenance services	-82	21
Depreciation	-3	...
Total program/workload requirements	-130	46
Projected increase/-decrease to operating expenses	$-99	$94

Explanation of program/workload requirements

FY 1992 to FY 1993
The decrease in other direct costs is due to the completion of maintenance projects for meter calibration and removal of a chiller. The reduction in Commission maintenance services reflects the completion of replacing the control system at the central chilled water plant.

FY 1993 to FY 1994
The increase in other direct costs is due to the requirement for installation of security lights at the central chilled water plant's parking lot. The increase in Commission maintenance services reflects increased electrical maintenance requirements to chillers, pumps and fans.

PANAMA CANAL COMMISSION
Supporting Services
General Support Services

Mission Statement

These activities provide the necessary repair and maintenance, and custodial services for Commission buildings and offices; operation of a furniture and equipment pool; the operation of a printing office for Commission printing and duplicating services requirements; an employee fitness program and activities for Commission employees and their dependents.

Included in this function are the following major activities:

Commission housing service - Provides for repairs, maintenance of Commission quarters structures and related facilities; as well as the administration and management of housing policies and regulations.

Commission building service - Provides the repairs, alterations, and maintenance of Commission offices, warehouse, shops and other buildings; operation of a furniture and equipment pool and provides custodial services to Commission buildings not specifically assigned to other Commission units.

Printing office - Consists of operating a printing plant which provides press, duplicating and related services for Commission needs. This activity is a Government field printing plant authorized under regulations of the Joint Committee on Printing.

Employee fitness program - Provides adult and youth off-duty morale support activities and physical fitness programs for Commission employees and their dependents. Operates and maintains swimming pools, tennis courts, ball parks and other sites; and furnishes a modest level of sporting equipment for certain community activities in the Commission areas.

PANAMA CANAL COMMISSION
Supporting Services
General Support Services

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$4,242	$4,426	$4,528
Supplies and materials	502	453	466
Other direct costs	2,488	2,445	2,618
Commission maintenance and power services	5,083	5,324	5,513
Depreciation	520	510	513
Total operating expenses	12,835	13,158	13,638
Unfunded adjustments to net operating expenses	-520	-510	-513
Change in selected resources	171	...	...
Total operating obligations	$12,486	$12,648	$13,125

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$467	$400
Program/workload requirements:		
Payroll and related	-25	...
Supplies and materials	-61	...
Other direct costs	-121	101
Commission maintenance and power services	73	-24
Depreciation	-10	3
Total program/workload requirements	-144	80
Projected increase/-decrease to operating expenses	$323	$480

Explanation of program/workload requirements

FY 1992 to FY 1993
The decrease in payroll and related is due to a reduction in temporaries partially offset by a reduced level of vacant permanent positions. The variation in the other expenses is primarily due to various maintenance, repair and electrical services to Commission quarter, buildings and facilities.

FY 1993 to FY 1994
The variation in expenses is primarily due to maintenance and repair requirements to various Commission quarters and buildings.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Executive Direction

Mission Statement

Executive direction provides the management, planning, direction and control of overall Commission activities and operations; also, provides for Congressional liaison through the Secretary's Office in Washington, D. C. and implements policies and directives of the Commission's Supervisory Board.

This function includes such major activities as:

Supervisory Board - Establishes policies for the Panama Canal Commission. Costs include a modest amount for official reception and representation of the Board

Office of the Administrator and staff - Exercises general and active control over the Commission's offices, business and operations, and general supervision over its agents, attorneys and employees. Also provides for the Administrator's official reception and representation expense, and a modest contingency for cash grants to assist community and recreational organizations in Commission areas.

Official residence - Provides for essential costs necessary to maintain the historical residence of the head of the agency. The official residence serves the dual purpose of providing facilities for official functions and also living quarters for the Administrator of the Panama Canal Commission. Included are costs of maintenance and utilities, but not wages and other personnel benefits for staff and guards.

Office of the Commission Secretary - Located in Washington, D. C., it has primary responsibility for liaison with the U.S. Congress and other Federal Government departments and agencies. Includes the Secretary's official reception and representation expense.

Administrative services - General administrative services performed for the Commission such as records management, forms control, messenger and mail services, microfilming, translation and interpreter services, issuance of identification documents for employees and dependents, and issuance of travel and transportation orders.

Office of Public Affairs - Responsible for public affairs and information activities, press and news releases, and the publication of a biweekly newspaper in English and Spanish. Provides communication with Canal "customers", the maritime industry. Also includes graphics and audio-visual services.

Guide service - Provides orientation for official visitors and the public encompassing the history and current operations of the Panama Canal. Includes the maintenance costs of the visitors' observation sites in the Canal area.

Consultants and advisors - Consultant contracts are utilized to provide support of Canal modernization and improvement contributing directly to Canal operational efficiency. In the administrative area, consultant services provide expert advice and evaluation of a review of the tolls system; advice of vessel accident claims and other Commission litigation; Canal traffic forecasts; and services in labor relations hearing cases. These services are essential to maintain efficiency and to comply fully with government regulations.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Executive Direction

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related costs	$8,977	$9,921	$10,474
Supplies and materials	248	303	304
Other direct costs	2,071	2,533	2,555
Commission maintenance and power services	174	161	175
Total operating expenses	11,470	12,918	13,508
Change in selected resources	112	-201	-1
Total operating obligations	$11,582	$12,717	$13,507

Analysis of projected increase/-decrease requirements to operating expenses

Total cost escalation	$489	$583
Program/workload requirements:		
Payroll and related	499	34
Supplies and materials	49	-7
Other direct costs	429	-29
Commission maintenance and power services	-18	9
Total program/workload requirements	959	7
Projected increase/-decrease to operating expenses	$1,448	$590

Explanation of program/workload requirements

FY 1992 to FY 1993
The increase in payroll and related costs is mainly due to a reduced level of vacant positions within the Office-staff of the Administrator. Supplies and materials increase is a result of purchases of film and chemicals for microfilm, and computer graphic-related requirements. The increase in other direct costs is primarily due to procurement of technical services associated with the Commission's Oil and Hazardous Material Spill contingency plan, improvements to the locks visitor pavillion, and a credit adjustment to FY 1992 cost of mail service.

FY 1993 to FY 1994
The increase in payroll and related costs is primarily due to a reduced level of vacant positions in the Office-staff of the Administrator and other staff units. The decrease in other direct costs reflects varying requirements for facility and office maintenance, partially offset by a reduction in requirements for consulting services.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Operations Direction

Mission Statement

Operations direction provides for the bureau-level direction and coordination of the non-administrative activities of the Commission.

This function includes the costs associated with administering the directors' offices for the various non-administrative Commission operating activities, i.e., the Marine Bureau, the Engineering and Construction Bureau, and the General Services Bureau.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Operations Direction

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related costs	$1,850	$2,065	$2,178
Supplies and materials	44	52	53
Other direct costs	48	93	95
Commission maintenance services	31	22	25
Total operating expenses	1,973	2,232	2,351
Change in selected resources	4	...	...
Total operating obligations	$1,977	$2,232	$2,351

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993 Estimate	FY 1994 Estimate
Total cost escalation	$101	$116
Program/workload requirements:		
Payroll and related	119	3
Supplies and materials	5	-1
Other direct costs	-9	-1
Commission maintenance services	43	2
Total program/workload requirements	158	3
Projected increase/-decrease to operating expenses	$259	$119

Explanation of program/workload requirements

FY 1992 to FY 1993
Payroll and related increase is due to a reduced level of vacant positions. The variations in the other expenses are due primarily to training requirements and the purchase of office furniture and equipment.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Financial Management

Mission Statement

The financial management function is responsible for the development of financial, accounting and rate-making policies; development of financial systems and procedures; maintenance of the general books of account and the preparation of financial statements and reports; establishment of systems of internal control; performing comprehensive internal audits; collection, custody and disbursement of funds and related fiscal matters; and financial planning and manpower control.

This function includes such major activities as:

Management information systems (MIS) - Responsible for establishing data processing related policy and guidelines, long-range planning for the Commission's data processing requirements and facilities, and direction of the activities of the Computer Operations Division, the Data Processing Systems Division and the MIS Technical Services Staff.

Accounting division - Performs the accounting and related administrative and internal control functions for the Commission including the preparation of internal and external reports of financial condition.

Office of Chief Financial Officer, financial planning, budget management, treasury, and systems - The Office of Chief Financial Officer provides the financial direction and guidance for the Commission. The financial planning activity is responsible for rate-making policies and special financial studies. Budget management is responsible for the budget process, manpower control, and liaison with the Office of Management and Budget. The treasury activity is responsible for collection, custody, and disbursement of funds; and liaison with the Department of the Treasury. The systems activity develops financial and accounting policies and reviews and maintains accounting and other financial systems.

Office of inspector general (OIG) - The OIG is established as a separate office under the provisions of the Inspector General Act of 1978, as amended by the Inspector General Act Amendments of 1988. The head of the OIG is the Inspector General who reports directly to and is under the general supervision of the Chairman, Board of Directors. The inspector general activity is responsible for; conducting comprehensive audits and investigations of Commission accounts, programs and operations; recommending policies for promoting economy and efficiency and preventing and detecting fraud, waste and abuse; and maintaining liaison with the General Accounting Office.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Financial Management

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$11,552	$12,175	$12,850
Supplies and materials	209	203	209
Other direct costs	2,538	2,831	2,892
Commission maintenance services	43	65	64
Total operating expenses	14,342	15,274	16,015
Change in selected resources	-10	...	...
Total operating obligations	$14,332	$15,274	$16,015

Analysis of projected increase/-decrease requirements to operating expenses		
Total cost escalation	$656	$733
Program/workload requirements:		
Payroll and related	56	35
Supplies and materials	-12	
Other direct costs	211	-24
Commission maintenance services	21	-3
Total program/workload requirements	276	8
Projected increase/-decrease to operating expenses	$932	$741

Explanation of program/workload requirements

FY 1992 to FY 1993
Payroll and related increase is mainly due to a reduced level of vacant positions. The increase in other direct costs is primarily due to actuarial services to update liability information for FECA and an increase in miscellaneous equipment requirements.

FY 1993 to FY 1994
The increase in payroll and related costs is principally due to a reduced level of vacant positions. The decrease in other direct is due to reduced requirements for maintenance and repair contracts.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Personnel Administration

Mission Statement

This function encompasses personnel administration and management including policy determination for employment and placement of employees; position classification, salary and wage administration; industrial training; employee training and management development; liaison with the U. S. Office of Personnel Management, and logistical support of the joint personnel policy program and central examining office.

This function includes such major activities as:

Personnel administration - Administering the personnel function of the Commission, including personnel policy development; employment and placement of job applicants; position classification, incentive awards, insurance and retirement programs; employee records management; and other employee services.

Joint personnel policy program - Responsible for performing central recruiting and examining functions for participating Federal agencies in the Panama Canal area on a reimbursable basis.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Personnel Administration

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related	$3,963	$4,313	$4,540
Supplies and materials	128	101	102
Other direct costs	221	173	164
Commission maintenance services	33	57	63
Total operating expenses	4,345	4,644	4,869
Change in selected resources	3	1	1
Total operating obligations	$4,348	$4,645	$4,870

Analysis of projected increase/-decrease requirements to operating expenses

Total cost escalation	$209	$237
Program/workload requirements:		
Payroll and related	153	...
Supplies and materials	-30	-2
Other direct costs	-55	-14
Commission maintenance services	22	4
Total program/workload requirements	90	-12
Projected increase/-decrease to operating expenses	$299	$225

Explanation of program/workload requirements

FY 1992 to FY 1993
Payroll and related increase is mainly due to a reduced level of vacant position. The reductions in supplies and materials and other direct costs are primarily due to completion of installation of LAN equipment and a reduction in WANG rentals. The increase in Commission maintenance is due to repairs and rehabilitation of personnel facilities.

FY 1993 to FY 1994
The increase in Commission maintenance services reflects a slight increased requirement for facility and office maintenance. The decrease in other direct is due to reduced requirements for commercial rent.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Employment Costs

Mission Statement

Employment costs of the Commission that are general in nature and not identifiable with other specific activities. Included are provisions for reimbursement to Department of Defense for education and health care services, the Commission's share of premium costs for employees' health benefits insurance, employees' home leave travel, certain other statutory employment costs, and an equity adjustment additive.

Included in this function are:

Employer's contribution to FICA, Medicare, and FEGLI - Represents the Commission's contribution to the Federal Employees' Group Life Insurance, Federal Insurance Compensation Act and Medicare.

Employer's contribution to the Federal Employees Health Benefit Act (FEHBA) and Panama Social Security (PSS) - Represents the Commission's share of employees' health insurance premium under FEHBA and payments to PSS for certain health and maternity benefits.

Reimbursement to the Department of Defense (DOD) for education and health care services - Commission's cost for education services and health care provided to eligible Commission employees, their dependents, and certain other personnel.

Employees' travel costs - Represents the cost of home leave and education travel and periodic transportation of POV vehicles for eligible Commission employees and their dependents.

Other employment costs - Includes payments associated with the increased cost-of-living for employees who lost military sales store and exchange privileges (equity adjustment additive); the Commission's unemployment costs; and the Commission's contribution to FERS and TSP.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Under Limitation)
Employment Costs

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Operating expenses:			
Payroll and related:			
Employer's contribution to:			
FICA and medicare	$1,022	$1,091	$1,131
FEGLI	250	236	229
FEHBA and PSS	7,465	7,303	7,015
FERS and TSP	149	178	196
Equity adjustment additive	138	144	141
Other direct costs:			
Reimbursement to DOD for education and health care services	4,586	4,767	4,852
Employment travel costs	1,407	1,446	1,407
Unemployment costs	11	25	28
Total operating expenses	15,028	15,190	14,999
Change in selected resources	-14	...	...
Total operating obligations	$15,014	$15,190	$14,999

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$1,134	$817
Program/workload requirements:		
Payroll and related	-840	-712
Other direct costs	-132	-296
Total program/workload requirements	-972	-1,008
Projected increase/-decrease to operating expenses	$162	$-191

Explanation of program/workload requirements

FY 1992 to FY 1993
The reductions in payroll and related and other direct costs reflect the workload decreases in FICA, FEGLI, health and education sponsorhsip, FEHBA and employment travel costs due to the attrition of the Commission's U.S. citizen employees.

FY 1993 to FY 1994
The reductions in payroll and related and other direct costs reflect the workload decreases in FICA, FEGLI, health and education sponsorhsip, FEHBA and employment travel costs due to the attrition of the Commission's U.S. citizen employees.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Not Under Limitation)

Cost of Early Retirement Benefits

Mission Statement

Provides for the Commission's cost for amortizing the expense for the special retirement provision, as described in Subchapter IV of the Panama Canal Act of 1979, Public Law 96-70. The estimate is provided by the Office of Personnel Management and is calculated on a "dynamic" basis considering future wage increases and cost-of-living increases in retirement annuities.

Interest Expense

Mission Statement

This represents the interest expense on the U. S. Government's net direct investment in the Panama Canal Commission.

The Panama Canal Commission is required to include as a part of its operating cost the interest expense on the U.S. Government's net direct investment in the Panama Canal. The method for calculating interest expense is described in Section 1603 of the Panama Canal Act of 1979, Public Law 96-70 as amended by Public Law 99-195 and Public Law 100-102. The rate used for determining the interest is the average coupon rate on outstanding marketable Treasury bonds in July of each year for the subsequent fiscal year.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Not Under Limitation)

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Cost of early retirement benefits			
Other direct costs	$15,144	$15,144	$15,144
Interest expense			
Other direct costs/obligations	$11,499	$12,000	$12,000
Average interest-bearing investment	$117,511	$124,607	$117,552
Interest rate percentage	9.786%	9.610%	9.483%

PANAMA CANAL COMMISSION
Administrative and General Expenses (Not Under Limitation)
Other General Expenses

Mission Statement

Expenses in this category represent certain general expenses not assignable to other activities.

Included in this area are such major activities as:

Compensation benefits for work injuries - This expense provides for compensation to certain employees for death and disability resulting from performance on duty injuries or ilness under the Federal Employees' Compensation Act (FECA). Employees covered are principally U.S. citizens and those non-U.S. citizens hired prior to October 1, 1979. As provided by law, employees and certain dependents are beneficiaries for various periods than can extend to life. The amounts charged to expense are deposited to a Department of Labor fund to provide for all future beneficiary payments.

Personnel development program - Responsible for assessing overall training needs; developing and administering management and supervisory training programs; and operating an industrial training school for apprentices. Special emphasis is placed on the need for training that will contribute to increased participation of Panamanians in all areas and at all levels of the Commission's work force.

Incentive award payments - Costs associated with the employee recognition program which is designed to motivate and reward employee excellence through performance, suggestions and career service awards.

Alien cash relief payments and related costs - Cash pension payments to former non-U.S. citizen employees of the Panama Canal who separated prior to October 1958 and therefore were not covered under the Civil Service Retirement System. Payments also include widows' benefits and periodic cost-of-living adjustments. Also includes the Home Care Program, formerly Annuitant Welfare Program, provides a variety of services to aged former employees and their survivors who have meager incomes. Services include limited home medical care and other assistance as required. The Commission reimburses DOD for providing the medical services.

Repatriation expense - Represents the cost of employee repatriation, including the shipment of household goods and vehicles as authorized.

Amortization of capital contribution - The credit for depreciation related to assets purchased with capital contribution.

All other direct costs - All other Commission miscellaneous expenses.

PANAMA CANAL COMMISSION
Administrative and General Expenses (Not Under Limitation)
Other General Expenses

Operating expenses:	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
	(Dollars in thousands)		
Payroll and related:			
Compensation benefits for work injuries	$13,000	$13,000	$12,000
Personnel development program	1,490	1,565	1,596
Incentive awards payments	1,025	1,372	1,597
Other	-63	494	509
Supplies and materials	270	156	142
Other direct costs:			
Alien cash relief payments and other related costs	1,025	991	961
Personnel development program	1,800	1,755	1,797
Repatriation	196	915	854
Other	-296	131	135
Commission maintenance services	61	119	125
Amortization of capital contribution	-4,332	-4,392	-4,168
Depreciation	413	380	380
Total operating expenses	14,589	16,486	15,928
Unfunded adjustments to net operating expenses	3,908	3,712	3,535
Change in selected resources	1,081	64	64
Total operating obligations	$19,578	$20,262	$19,527

Analysis of projected increase/-decrease requirements to operating expenses

	FY 1993	FY 1994
Total cost escalation	$367	$194
Program/workload requirements:		
Payroll and related	906	-760
Supplies and materials	-121	-19
Other direct costs	726	-197
Commission services	54	...
Amortization of capital contribution	58	224
Depreciation	-93	...
Total program/workload requirements	1,530	-752
Projected increase/-decrease to operating expenses	$1,897	$-558

Explanation of program/workload requirements

FY 1992 to FY 1993
The increase in payroll and related is mainly due to a recalculation of compensation benefits for work injuries and an adjustment to incentive awards payments. The variation in supplies and materials and Commission services is due to varying requirements in personnel development for training and facility maintenance. The variation in other direct costs is primarily due to an adjustment to the long term repatriation liability.

FY 1993 to FY 1994
The program change in payroll and related cost is almost wholly due to the reduction in payments for compensation benefits for work injuries, partially offset by an increase in the pay scales for incentive awards payments.
The reduction in other direct costs is primarily due to attrition of those eligible for alien cash relief, and the declining population of the Commission's U.S. citizen employees eligible for repatriation.

PANAMA CANAL COMMISSION
Total Basic Workyears by Program
(Full-time Equivalency)

	FY 1992 Actual	FY 1993 Estimate	FY 1994 Estimate
Transit Operations			
Maintenance of channels, dams and spillways ..	770	764	764
Navigation services and control	2,027	2,057	2,089
Locks operations and maintenance	1,275	1,310	1,302
General repairs, engineering and maintenance .	1,781	1,791	1,793
Fire and facility protection services	474	484	484
General canal expense	253	294	308
Total transit operations	6,580	6,700	6,740
Supporting Services			
Logistical services	244	240	240
Motor transportation	343	340	340
Power system	137	136	136
Communications system	164	159	159
Water system	88	95	102
General support services	238	229	229
Total supporting services	1,214	1,199	1,206
Administrative and General			
Under Congressional Limitation:			
Executive direction	232	244	244
Operations direction	39	41	41
Financial management	322	328	328
Personnel administration	136	143	143
Not Under Congressional Limitation:			
Personnel development program	46	48	48
Total administrative and general	775	804	804
Total basic workyears (full-time equivalency).	8,569	8,703	8,750
Full-time equivalent of overtime hours	634	524	559
Full-time equivalent of holiday hours	126	129	131

PANAMA CANAL COMMISSION
Detail of Full-time Permanent Positions by Program

	FY 1992 Authorized	FY 1993 Estimate	FY 1994 Estimate
Transit Operations			
Maintenance of channels, dams and spillways ..	639	576	576
Navigation services and control	2,059	2,043	2,085
Locks operations and maintenance	1,298	1,302	1,311
General repairs, engineering and maintenance .	1,366	1,320	1,327
Fire and facility protection services	467	467	467
General canal expense	252	262	273
Total transit operations	6,081	5,970	6,039
Supporting Services			
Logistical services	223	225	225
Motor transportation	348	348	348
Power system	119	119	119
Communications system	132	124	125
Water system	60	63	68
General support services	174	175	175
Total supporting services	1,056	1,054	1,060
Administrative and General			
Under Congressional Limitation:			
Executive direction	220	219	219
Operations direction	41	38	38
Financial management	328	328	328
Personnel administration	122	122	122
Not Under Congressional Limitation:			
Personnel development program	40	41	41
Total administrative and general	751	748	748
Total full-time permanent positions	7,888	7,772	7,847

PANAMA CANAL COMMISSION
FY 1994 Capital Program Detail
(Dollars in thousands)

Project Grouping	FY 1994 Estimate
Transit Projects	$30,900
Utilities Projects	2,887
General Support Projects	5,013
Total	$38,800

PANAMA CANAL COMMISSION
FY 1994 Capital Program Detail
(Dollars in thousands)

(Obligational Basis)	Project Total
I. Transit Projects	
A. Transit equipment:	
1. Damming device	4,000
2. Craneboat ATLAS	7,000
3. Other floating equipment	705
4. Other transit equipment	4,446
Total transit equipment	16,151
B. Transit facilities:	
1. Gaillard cut widening/straightening	9,600
2. Power feed cables, locks	1,819
3. Other transit facilities	3,330
Total transit facilities	14,749
Total transit projects	30,900
II. Utilities Projects	
A. Utility systems:	
1. Electrical power and communication systems	2,754
2. Water systems	133
Total utilities projects	2,887
III. General Support Projects	
A. General support equipment:	
1. Replace motor vehicles	2,526
2. Other general support equipment	1,496
Total general support equipment	4,022
B. Commission buildings and supporting facilities:	
1. Commission buildings	288
2. Supporting services facilities	134
Total Commission buildings and facilities	422
C. Other miscellaneous general support projects:	
1. Minor capital items	221
2. Advance engineering, planning and design	348
Total other miscellaneous support projects	569
Total general support projects	5,013
Total FY 1994 Capital Program	38,800

PANAMA CANAL COMMISSION
FY 1994 Project Justifications
(Dollars in thousands)

I. Transit projects $30,900

A. Transit equipment $16,151

1. Damming device $4,000

This nonrecurring project provides for the replacement of Caisson No. 1. The Commission had two (2) floating caissons that are used to dry the locks chambers during Miter Gate overhauls and other repairs to sill and chamber. A caisson is floated to the end of a chamber and filled with water to sink it in position to isolate and seal off the chamber from the lake or sea. The caissons are equipped with internal pumps which in addition to the tower pumps are used to de-water the chamber. Also, a second locks damming device is needed as a backup to be used when the other is undergoing scheduled repairs and maintenance, and also the two may be used simultaneously to control the water at both ends of the locks chamber, for instance, when draining all levels to work on lock gates. Because the caissons are, in effect, floating equipment, a mooring station, dry docking, and a costly paint renewal program are required to keep them in operating condition.

The caissons were purchased in 1914 (Caisson No. 1) and 1941 (Caisson No. 2), having an estimated service life of 50 years. In June 1991, a thorough inspection of both caissons was performed by representatives of the American Bureau of Shipping Marine Advisory Services. They recommended in their final report that Caisson No. 1 be replaced, as it is unsafe in its current condition and repair costs will exceed replacement cost.

It is proposed to replace this caisson with a damming device that will provide a safer, more effective and economical way of drying the locks chambers. A damming device will act as a large bulkhead that can be lowered into place, in sections, by crane. Once in place, de-watering pumps will be operated to drain the chamber. Upon completion of the work, the damming device can be pulled out of the water where maintenance may be done.

2. Craneboat ATLAS $7,000

This nonrecurring project provides for the replacement of the Craneboat ATLAS which will reach its 60th year in 1994. Most of its equipment, with the exeption of the crane which was installed 15 years ago, is obsolete and does not meet current safety standards and spare parts are no longer available. The ATLAS is a vital piece of equipment since it is the Commission's only self-propelled floating crane. This feature is the vessel's greatest asset, permiting considerable maneuverability and ease of deployement, even in confined waters and under restricted navigational conditions. The ATLAS workload is devided among various functions that provide critical support at the locks, in maintaining aids to navigations and in other miscellaneous areas. It is also the only Commission boat with the capability to provide direct support in certain salvage/rescue operations.

Various options for replacing the ATLAS were reviewed including overhauling the existing craneboat, and it was determined that the best alternative is to purchase a new boat with characteristics similar to the ATLAS and relocating the existing 55-ton crane to the new boat. This new craneboat, in conjunction with the capability provided by the floating cranes HERCULES and GOLIATH, will ensure that reliable, cost-effective floating crane services will continue to be provided up to and beyond the year 2000.

PANAMA CANAL COMMISSION
FY 1994 Project Justifications
(Dollars in thousands)

3. Other Floating Equipment $705

This recurring project provides for the replacement of Panama Canal Commission's floating equipment which is at the end of its economically serviceable life and costly to maintain. This equipment is essential to provide the safe and efficient services required to transiting vessels, and to support the ongoing maintenance of the channel.

Replacement of Launches FALCON and SARGENTO, $285.

Replacement of lighted buoys, $210.

Replacement of pontoon cylinders, $210.

4. Other transit equipment $4,446

This recurring project provides for the purchase and installation of machinery, equipment and tools required for the safe and efficient operation of the Canal.

Marine operations requirements $1,318

The replacement of air compressors, rowboats and other miscellaneous machinery, equipment and tools for the Locks Division, $733.

Computer and support systems, upgrades to traffic control system, and other miscellaneous equipment for the Traffic Management Division, $460.

Training aids and related equipment for the Maritime Training Unit, $22.

Miscellaneous machinery, equipment and tools for towboat operations of the Canal Services Division and the Office of the Marine Director, $58.

Addition of a lathe, a forklift for the Northern District Shore Station, and a microfiche reader for the Canal Services Division, $45.

Maintenance and repair operations $1,823

Replacement of Bending Roll XB-277 built in 1929. A critical machine this is used to roll dredge pipes. It has exceeded its economical service life and requires replacement, $1,330.

Miscellaneous machinery, equipment and tools for the Industrial Division, $53.

PANAMA CANAL COMMISSION
FY 1994 Project Justifications
(Dollars in thousands)

Small portable equipment and other miscellaneous machinery, equipment and tools for the Maintenance Division, $106.

Central processing units and peripherals for the Engineering Division, $100.

Outboard motors, inboard engines, and other miscellaneous machinery, equipment and tools for the Dredging Division, $117.

Miscellaneous equipment for the Electrical, Engineering and Construction Divisions, $117.

Other transit operation requirements $1,305

Addition of security hardware/equipment at Canal installations, $344.

Replacement of tractors, $322.

Replacement of communication equipment, $175.

Replacement of fire extinguishment systems, hazardous material response equipment, closed circuit television systems, and other miscellaneous tools and equipment, $464.

B. Transit facilities $14,749

1. Gaillard cut widening/straightening ..	$9,600
Dry excavation	$7,901
Dredging/wet excavation	$1,699

This multi-year program will provide additional capacity for the Canal that will ensure a future of quality transit service to the customers of the waterway. Over time, traffic growth, especially in the category of wide-beam vessels, will continue to compress the reserve capacity margin required to keep Canal water times within the standard of 24 hours or less. Unless the cut is widened by sometime late in the first decade beyond the year 2000, a capacity pinch point will be reached and the average Canal water time standard of 24 hours will not be sustainable.

Presently wide-beam vessels are restricted to one-way traffic through the narrow 500-foot wide Gaillard Cut reducing the throughput capacity of the Canal. Hydrodynamic testing and simulation modeling has shown that widening to 630 feet (and up to 730 in curves) will permit wide-beam vessels to travel north and southbound simultaneously without sacrificing safety and placing the vessels in jeopardy. Widening will entail the removal of approximately 23 million bank cubic yards of dry material and 12 million bank cubic yards of wet material. The approach to the widening is based on utilizing existing Canal dredging resources on a flexible "do-what-you-are-able" basis for the wet work spread over a 20-year excavation period starting FY 1994.

PANAMA CANAL COMMISSION
FY 1994 Project Justifications
(Dollars in thousands)

Preliminary dry excavation, also to be accomplished over a 20-year period, and certain equipment acquisitions was initiated in FY 1992. This must be done ahead of the wet work and maintain some lead throughout the life of the project. Final work on the project and required relocation of facilities displaced by the excavation will occur in 2014.

2. Power feed cables, locks $1,819

This nonrecurring multi-year project provides for the replacement of the primary power feed cables and the associated sectionalizing switches at the three locks. The power feed cables, which are forty years old and beginning to deteriorate, provide the primary electrical energy feed to all locks equipment through step-down transformers.

Tests performed in FY 1991 by the Electrical Division on the primary power feed cables indicate that cable insulation is beginning to fail and that plans should be made for their timely replacement. Failure of the power feed cables would result in prolonged outages at the locks which will seriously affect the Canal's ability to service transiting vessels.

The installation of the 6.9 KV System at Gatun Locks has been completed. FY 1994 funding will provide for the procurement of cables and associated sectionalizing switches for the 2.4 KV System of the three locks. Benefits of purchasing the materials for the three locks at the same time are standardization and lower costs. The installation at Miraflores is scheduled for FY 1995 and at Pedro Miguel and Gatun, for FY 1996.

3. Other transit facilities $3,330

This recurring project provides for the rehabilitation, repair, replacement, improvement and addition to transit facilities of the Panama Canal Commission. These facilities support the transit function to insure the safe and efficient transit of vessels and effective support of all maintenance operations.

Marine operations $2,891

Replacement of the maintenance shops and warehousing buildings at Gatun Locks, $955.

Replacement of the hydraulic drive and locking ram system at the Miraflores South Locomotive Turntable, $785.

Replacement of the potable water lines at Miraflores Locks, $483.

Replacement of manhoists at locks cross-unders, $278.

Miscellaneous improvements to Locks Division facilities, $106.

Improve security in the Marine Traffic Control Center, and other miscellaneous improvements to Traffic Management Division facilities, $106.

PANAMA CANAL COMMISSION
FY 1994 Project Justifications
(Dollars in thousands)

Improvements to Miraflores landing and other miscellaneous facilities improvements for the Canal Services Division, $178.

Other transit operations $439

Miscellaneous security improvement projects and other miscellaneous improvements for the Sanitation and Grounds Division and the Fire Division facilities.

II. Utilities projects $2,887

A. Utility systems $2,887

1. Electrical power and communication systems $2,754

This recurring project provides funding for the electrical power and communication systems of the Panama Canal Commission. The electrical power system items procured under this project will insure power transmission integrity, versatility and dependability in addition to reducing possible equipment failure due to overload conditions. The equipment is needed to serve high-peak demand and correct poor voltage and potential overload conditions in the high and low voltage system networks. Equipment procurement for the communications system will consolidate existing systems to permit the required separation of non-Commission subscribers, provide greater efficiency, reliability and versatility to the Commission system, and reduce requirements for maintenance and repair.

Replacement of four 2.4 KV Feeders at Pedro Miguel Locks, three of them installed in 1914 and the fourth in 1953. The advanced age of these feeders have increased their probability of failure and prolonged outages at the Locks, therefore they require replacement, $2,295. There are no plans to replace the feeders at other Locks in the near future because of their good condition and back-ups available.

Replacement of power system/substation equipment, $151.

Replacement/addition of electrical distribution system equipment, $111.

Replacement/addition of electronics test equipment and miscellaneous communications equipment, $197.

2. Water systems $133

This recurring project provides funding for the water purification plants, pump stations, distribution pipelines and the chilled water air conditioning system of the Commission's water utilities. Funding required for FY 1994 provides for the replacement of miscellaneous tools and equipment for the Water and Laboratories Branch operations.

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III. General support projects $5,013

A. General support equipment $4,022

1. Motor vehicles $2,526

This recurring project provides for the replacement of overage motor vehicles which have reached the end of their economic service life. Funding for FY 1994 provides for the purchase of 35 passenger-carrying vehicles (including 15 large heavy duty sedans, 19 compact sedans, and 1 ambulance for replacement only) and 77 nonpassenger-carrying vehicles (including light, medium and heavy trucks). Large heavy-duty sedans are required for trans-Isthmian transportation of the pilot force. The new vehicles will be essentially of the same type, size and capacity as those being replaced. All vehicles being replaced will exceed the age and/or mileage standards prescribed by the General Service Administration (GSA) (CFR 48:101-38.402) at the time of replacement.

2. Other general support equipment $1,496

This recurring project provides for the procurement of small plant and equipment items that have reached the end of their serviceable life and are no longer economical to maintain.

General services bureau $444

Replacement of forklift trucks and other miscellaneous tools and equipment for the Logistical Support Division, $226.

Low bed trailer and tire recap molds for the Motor Transportation Division, $76.

Intrusion alarm systems and central air conditioning chillers/components for the Community Services Division, $118.

Miscellaneous equipment for the Printing Office, $24.

Administrative and general staff $1,052

Includes such items as computer systems and computer peripheral and on-line equipment for financial management operations, $481.

Equipment for the apprentice training school, health, safety and training equipment for personnel administration operations, $320.

Graphic and video presentation equipment and systems, $125.

Microfilmers and office automation equipment for administrative services operations, $102.

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Other miscellaneous items, $24.

B. Commission buildings and facilities $422

1. Commission buildings $288

This recurring project provides capital funding for the renovation, rehabilitation, improvement and repair of approximately 153 structures and facilities under the administrative control of the Buildings Management activity. Included in this capital project are such items as roof replacements and the rehabilitation and enlargement of facilities to include improvements which will reduce the levels of energy consumption.

Enlargement of the Occupational Health Center, Building 20, Gatun, $159.

Renovation and repair projects in various other Commission buildings, $129.

2. Support services facilities $134

This recurring project provides the rehabilitation, repair, replacement and improvement of support service facilities necessary for the support of Canal operations. FY 1994 provide for improvements to comply with EPA regulations at Motor Transportation Division facilities, and installing sidings at Building 5086, Mt. Hope.

C. Other miscellaneous support projects $569

1. Minor capital items $221

This item provides for replacements and additions which are unforeseen and/or too small to warrant separate listings and justifications. Approval of the Administrator and/or Canal Improvements Director is required for funding a project from this item.

2. Advance engineering, planning, and design $348

This provides an authorization to be used for engineering, planning and design work on projects included, or to be included, in the Commission's capital program for subsequent fiscal years. This allows the detailed design effort to be completed in advance on projects selected for accomplishment so as to permit their timely advertisement, award and completion.

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